



Commonwealth of The Bahamas

Ministry of Education

Primary School Mathematics Curriculum Guidelines

Grades: 1-3

**Department of Education
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Message from Acting Assistant Director of Education (Science and Technology Section)

What helps students to develop a Mathematical outlook, is the processes to which they are exposed in the classroom. Mathematics, therefore, should not be merely a study of finite answers but rather an application of processes that aid in discovering and learning about the relationship between numbers and the world in which we live.

If our education system is to keep pace with scientific advancement, our students must be exposed to an effective and comprehensive mathematics education programme which presents opportunities for them to become actively involved and at the same time obtain the requisite knowledge, skills and attitudes necessary to compete both locally and globally in a scientific and technological society.

For this to be realized, the development and implementation of model mathematics curricula, strengthening the capacity of teachers and providing adequate science instructional supplies and facilities are paramount.

Mathematics teachers are therefore challenged to inspire, stimulate divergent thinking and provide the means for students to investigate based on what they know as well as what they wish to discover.

With each of us giving of and performing at our best, our students should be able to achieve our goal, which is, to develop competent citizens to provide an efficient and effective workforce needed to advance mathematics careers and professions so as to improve the quality of life for all.

Mr. Hamblin Newbold
Acting Assistant Director of Education
Science and Technology Section

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- Mrs. Lenora Archer (Deputy Director, Curriculum & Instruction)
- Mr. Hamblin Newbold (Acting Assistant Director, Science & Technology Section)
- Dr. Joan Rolle (Coordinator & Education Officer, Primary School Mathematics)
- **Curriculum Development Team Members:**
 - Mrs. Zelma Albury Senior Mistress, T.G. Glover Primary School
 - Mr. Jermaine Butler Senior Assistant, Naomi Blatch Primary School
 - Ms. Rochelle Coakley Trained Teacher, Albury Sayle Primary School
 - Mrs. Elva McPhee Charles W. Saunders Primary School
 - Mrs. LeAnna Deveaux Miller Trained Teacher, Woodcock Primary School
 - Mrs. Braquelle Newton Trained Teacher, Queen’s College Primary School
 - Mrs. Jennetta Taylor Trained Teacher, Sadie Curtis Primary School
- **Mathematics Survey Manager:**
 - Ms. Keishla Hunt Trained Teacher, C.W. Sawyer Primary School
- Principals of the schools of the members of the Curriculum Development Team
- **Problems of the Day Team Members:**
 - Ms. Roberta Bullard Trained Teacher, Uriah McPhee Primary School
 - Ms. Pateece Rahming Trained Teacher, Albury Sayle Primary School

- **Vectors:**

Mrs. Brendamae Adderley

Dr. Marcella D. Elliott

Mrs. Marion Campbell Laidley

Dr. Stacy Stubbs

Trained Teacher, Stephen Dillet Primary School

Assistant Professor, Mathematics Education, The College of The Bahamas

Trained Teacher, C. I. Gibson High School

Trained Teacher on Assignment

- **Typists:**

Mrs. Deborah Stanislaus Higgs

Mrs. Inease Bullard

Executive Officer, Science & Technology Section

Filing Clerk, Science & Technology Section

- **Other Contributors:**

Mrs. Darnell Adderley

Dr. Brendamae Cleare

Ms. Vernita Davis

Mrs. Lynette Lewis

Ms. Dominique Thompson

Senior Mistress, L. W. Young Junior High School

Dean: Pure and Applied Sciences, College of The Bahamas

Subject Secretary, Examinations and Assessment Division

Statistical Analysis and Software Technology Incorporated (STI) Coordinator

Mathematics Teacher, R.M. Bailey Senior High School

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PHILOSOPHY

Mathematics is a vital component in the development of science, technology, industry, commerce, the day to day living in society/world and is essential to the quality of life of our people.

Mathematics requires thinking, reasoning, and understanding of principles, thoughts, ideas, and patterns in our environment. Therefore, emphasis should be placed in the development of mathematical concepts. Its specific focus is to prepare students to explore, discuss, develop, test, and apply mathematical concepts in the further growth and development of society.

OVERARCHING GOAL

Students will develop self-confidence and display proficiency in logical, critical and analytical reasoning as well as become proficient in the use of technology and other mathematical tools. They will also demonstrate mastery of problem solving, communicating mathematically, working cooperatively, and learning to value mathematics while incorporating classroom experiences with real life situations.

SUB-GOALS

The Mathematics programme, as outlined in the curriculum guidelines, requires that all students in The Bahamas achieve the following:

1. Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.
2. Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.
3. Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.
4. Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.
5. Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.
6. Collect, organize, and analyze data using statistical methods: predict results; and interpret uncertainty-using concepts of probability.

To achieve these sub-goals, all students must have many and varied experiences, through which they read, write, discuss, make conjecture, and test solutions to complex, practical problems.

This curriculum document is intended to foster an understanding of the “whys” of Mathematics as well as appropriately meet the current and future needs of the student population in schools across The Bahamas.

The use of current research in Mathematics and a working knowledge of entry requirements for programmes at The College of The Bahamas and Colleges in the United States, Canada, Great Britain and the University of the West Indies as well as adherence to our own goals, constituted the basis used by curriculum developers to formulate the objectives/content of this document.

It is our intention that teachers and parents use this document to guide their teaching of Mathematics, supplementing it with activities from texts and other resources to help our students attain the goals that are outlined in this document.

MATHEMATICAL EXPECTATIONS GRADES 1-12 A DISCUSSION

In order to understand the expectations of the mathematics curriculum more fully, the curriculum writing team offers the following mathematics processing standards to consider as you strive to reach these goals with your students/children.

1. **Students will become mathematical problem solvers.** Every Mathematics lesson should have some element of problem solving to challenge the students. There are two main types of problems: routine and non-routine. Routine problems are usually application problems and can be solved by applying an operation of a formula. We teach children to reason and think critically with these problems when we work on reading for understanding. Teaching key words such as **‘altogether means to add,’ does not lead to understanding and is an inappropriate problem solving technique.** Asking students to draw a picture of what is happening in the story helps students make connections to the concept of the operations and involves reasoning. Have students apply developing problem-solving strategies as they pose and solve problems and conduct investigations, to help deepen their mathematical understanding.

Non-routine problems tend to be more open-ended, may have more than one answer or solution and usually require a strategy to solve the problem. These problems require reasoning and not simply application of operations. A teacher with a well-balanced mathematics programme uses a combination of problems with his/her students.

2. **Students will be able to communicate mathematically.** In order for students to achieve this goal, they must be encouraged daily to communicate in class through small and large group discussions and writing. Oral and written presentations, creating their own story problems and **explaining HOW they arrived at solutions** are ideal ways to achieve this goal and are methods supported through the activities in this curriculum/resource guide.
3. **Students will develop self-confidence with Mathematics.** In order to develop self-confidence, students and teachers need to have success in Mathematics. Build on your students’ previous experiences and draw on your own.
4. **Students will learn to value Mathematics.** Students will achieve this goal over time if they see the enthusiasm for the subject. School-wide projects such as Math Day or “One Hundred Day” celebrations in primary schools and “Invention Day” in the high schools or national projects like Math at the Mall that will assist in developing this goal. Speakers with jobs that use Mathematics (which is most careers) are also helpful. Finding examples of Mathematics used properly or improperly on TV and in the newspapers is another worthwhile connection.
5. **Students will be able to make connections within the field of Mathematics, and with Mathematics in the real world.** Students should understand Mathematics as a necessary set of skills and concepts for the real world; therefore, teachers are encouraged to integrate Mathematics teaching with other subjects. Also when working with one strand, use skills from other strands. For example, **Statistics and Number Sense blend well together.**

6. **Students will learn to work cooperatively.** Most jobs that require a mathematical background are those where people must collaborate. Therefore, the activities in the curriculum support peer tutoring, cooperative learning, pairing of students, group projects, group presentations and activities in which each student in the class participates.
7. **Students will become more proficient in the use of technology and other mathematical tools.** While calculator and computers are the primary pieces of technology used in Mathematics, students should also learn how to use the rulers, compasses, protractors and other tools. In addition, students also need to learn which tool is appropriate for a given situation. These learning tools allow students to investigate mathematical ideas and to solve problems.

HOW TO USE THIS GUIDE

Mathematics is a highly interconnected and cumulative subject. The Mathematics curriculum introduces skills and concepts in sequence, which contribute to and serve as building blocks for each other across grade levels. The curriculum also gives focus to important mathematics strands that will prepare students for continued study, and problem solving at school, home, and even work settings. Instead of seeing mathematics as a set of disconnected topics, students should be able to view, understand, and appreciate the relationships among mathematical skills and concepts. When students build connections and skills, their understanding deepens and expands.

Students should have opportunities to learn mathematical skills and concepts as they progress through the grades and as such, should not spend a significant part of their instructional time reviewing mathematics content. Teachers at each grade level should know what mathematics concepts their students have already studied and will study in future grades to ensure that topics and skills taught at the present grade level are aligned with the past and perceived mathematical experiences.

The objectives at each grade level are divided into 6 strands: **Number and Number Sense, Patterns, Functions and Algebra; Computation and Estimation, Measurement, Geometry, and Statistics & Probability.**

While each of the six strands deals with a different area of mathematics at the respective grade levels, objectives from the strands should be integrated. For example, while teaching computation, it is natural to look at patterns and concepts from number sense. While teaching statistics, it is natural to ask questions that will require students to compute data presented in graph form.

In the Scope and Sequence, there are acronyms to advise teachers when a skill is to introduced, developed, maintained, and advanced. The letter I = Introduce, D= Develop, M= Maintain, and A= Advance. Following the Scope and Sequence is a suggested pacing guide for each grade level. The pacing guide is to assist teachers in planning for the year in order to include all of the content necessary for meeting the standards in teaching mathematics. Teachers are reminded that there are at least 7 periods of Mathematics scheduled on the Time Table per week. Using the scheduled time wisely, will enable teachers to complete the content at their grade level. At the beginning of each Scope of Work are essential questions that will guide the teaching and learning of the strands. At the end of the strands, students should be able to answer all of the questions.

Teachers are not expected to teach the objectives in the order presented. Instead, teachers are encouraged to take the objectives and work them into their yearly plan in a manner that integrates the strands with one another, and with other subjects. There are an unlimited number of combinations and each teacher should put together lessons that allow students to make sense of the material presented. If students attain the learning objectives in the time frame given, then move on. If not, move on and use other avenues in the document that will allow students to acquire the knowledge and skills.

Teachers of grades 4-6 could begin the academic year with another strand other than Number and Number Sense if students would have been exposed to the skills earlier. During the period of 2005-2010, it has been proven (by the Primary Mathematics Unit) that students in the upper grades enjoy Measurement and Geometry Strands at the beginning of the academic year.

It is not feasible to list every objective in the pages of The Scope of Work of each strand in grades K-7 of the Mathematics Curriculum. Therefore, the Scope of Work for the year in which it is introduced at subsequent grade levels is reinforced and extended.

THEORETICAL FRAMEWORK

The major theoretical framework that guides the Primary Mathematics Curriculum is the constructivist theory. Constructivism emphasizes a hands-on approach to mathematics where students are more actively involved with teachers in creating new meanings. Additionally, constructivism often utilizes collaboration and peer criticism as a way of provoking students to reach a new level of understanding. During instruction, teachers focus on having students make connections between facts and developing new understanding. Further, teachers modify their teaching strategies to students' responses which encourage students to analyze, interpret, and predict information. Teachers depend on open-ended questions for discussions and encourage extensive dialogue among students. The curriculum promotes the following:

- Acceptance of student independence and initiative
- Utilization of manipulatives, interactive, and physical materials.
- Use of cognitive terminology by teachers such as "classify," "analyze," and "create" when planning.
- Responses of students to drive lessons, shift instructional strategies, and alter content
- Inquiry concerning students' understanding of concepts before sharing their own understanding of those concepts
- Dialogue of students with the teacher and with one another
- Inquiry by asking thoughtful, open-ended questions and encourage students to ask questions of each other
- Elaboration of students' initial responses
- Allowance for wait time after posing questions
- Time for students to construct relationships and create descriptions.

BENCHMARKS: GRADES 1-3

By the end of grade 3, all students should know and be able to perform the following:

- Recall the basic addition and subtraction facts (3 seconds or less per fact).
- Use addition and subtraction facts to solve problems.
- Use a calculator as a tool in problem solving.
- Explain the concept of tens and ones.
- Explain the relationship between number of parts and the size of fractions.
- Estimate and calculate sums and differences up to two digit numbers by applying strategies.
- Use a metric ruler to measure to the nearest centimeter.
- Tell time accurately.
- Identify common shapes by listing properties.
- Collect, organize and analyze data using a simple bar graph.
- Solve non-routine problems by applying strategies.

BENCHMARKS: GRADES 4-6

By the end of grade 6, all students should know and be able to perform the following:

- Recall basic multiplication and division facts (3 seconds or less per fact)
- Estimate and calculate whole number and decimals products and quotients by applying strategies.
- Estimate and calculate fraction sums, differences, and products by applying strategies.
- Explain the relationship among whole numbers, fractions, decimals, and percents.
- Estimate and measure length, volume, area, mass, and temperature in metric units.
- Classify types of triangles, quadrilaterals, and angles by properties.
- Use a fraction-type calculator as a tool.
- Collect, organize and analyze data using several types of graphs and measures of central tendencies (mean, median, mode, and range)
- Make reasonable predications about the outcomes of an event using simple probability rules.

DEFINITION OF CURRICULUM TERMS

Overarching Goal	Outlines the intended purpose of the curriculum document. It defines the overall outcome of the curriculum, in this case the Primary Mathematics Curriculum.
Sub-goals	Indicate the main objective for the various strands of the curriculum.
Standards	Outline learner outcomes and expectations for each sub-goal. They indicate student progression from one attainment level to another.
Scope and Sequence	A map outlining the objectives for each level, showing the progression and overview of the work to be accomplished
Scope of Work	Develops each objective with suggested content, activities, assessment and resources to facilitate and enhance the teaching/learning process.
Skills	Learned capacity to carry out pre-determined results often with the minimum time. The following skills are central to Mathematics: researching, evaluation, analysis, synthesis, application, comparing and contrasting, role-playing, interpreting, and calculating.
Concepts	Scheme or plan for Mathematics. Key mathematical concepts include addition, subtraction, division, multiplication, and fractions,
Attitudes	Way a person views something or tends to behave towards it. Mathematical attitudes include showing confidence in using mathematics, perseverance in solving problems, a positive attitude, and a willingness to work. These attitudes will enable success in the teaching and learning of mathematics.
Content Standards	Cover what students are to learn in various subject areas, such as Mathematics and Science.
Performance Standards	Specify what levels of learning are expected.
World-class Standards	Content and performances that are expected of students in other industrialized countries. This term is also attached to the movement in the United States to bring U.S. students' academic achievement and knowledge on par with students' accomplishments in the other industrialized countries.

Essential Questions

Develop foundational understandings. They provide the fundamental organizing principles that bound an inquiry and guide the development of meaningful, authentic tasks. Essential questions have several key components:

- Attempts to answer essential questions and allow people to explore the connection between their personal, individual, unique experience of the world and its exterior, objective, held-in-common dimensions. In exploring essential questions together, people are able to find expression for their own strongest gifts and interests at the same time that they are able to establish a sense of community with others.
- Essential questions allow us to explore what knowledge is, how it came to be, and how it has changed through human history.
- An essential question is always posed at the boundary of the known and the unknown. While permitting fruitful exploration of what others before us have learned and discovered, attempts to answer an essential question open up mysteries that successively reveal themselves the more we come to "know".
- An essential question reaches beyond itself. It is embedded in ideals of freedom, strength, and possibility that permit people to come-to-know without becoming trapped in constructs that are unfair or no longer useful. Essential questions arise from an implicit commitment to human efficacy: to a belief that individuals can make a difference, that knowledge can both be acquired and changed.
- An essential question engages the imagination in significant ways. Without imagination, we could not ask the questions that drive science forward. We would have no art, no stories, no mathematics, no philosophy. Moreover, it is questions that spark the imagination that permit young and old to journey together into unknown realms. Imagination knows no bounds, no restrictions; nor do the questions we pose when we cultivate our powers of imagination. An essential question that arises from imaginative engagement is an important way to bring teacher, student, and subject matter together in ways that enrich all three.



DEFINITION OF STRANDS

The National Council of Teachers of Mathematics (NCTM) proposed six strands/standards that are content oriented. For the content standards/strands, the goals are further broken down into objectives.

Number and Number Sense: Deals with the proficiency of numbers and understanding of how numbers operate. It involves an understanding of how different types of numbers, such as fractions, decimals, and percent are related to each other, and how each can best be used to describe a particular situation. Further, it includes the more traditional category of school mathematics curriculum called numeration (process of counting or numbering) and thus includes the important concepts of place value, number base (decimal, multiple, binary) magnitude, and approximation and estimation. Knowing how to represent numbers, recognizing 'how many' are in a group, and using numbers to compare and represent, paves the way for grasping number theory, place value and meaning of operations and how they relate to one another. This strand emphasizes the understanding of numbers, number patterns, counting, and estimation. Such understanding is best developed through purposeful, concrete experiences and the use of manipulatives.

Patterns, Functions, and Algebra: Algebra is the ability to sort, order objects or numbers, and recognize and build on simple patterns. Algebra provides the language through which one communicates the patterns in mathematics. Algebra is more than a set of procedures for manipulating symbols. It provides a way to explore, analyze, and represent mathematical concepts and ideas. Additionally, it describes relationships that are purely mathematical or ones that arise in real-world phenomena and are modeled by algebraic expressions. From the earliest age, students should be encouraged to investigate the patterns that they find in numbers, shapes, and expressions, and, by doing so, make mathematical discoveries. They should have opportunities to analyze, extend, create a variety of patterns, use pattern-based thinking to understand and represent mathematical and other real-world phenomena. The function concept is one of the most fundamental unifying ideas of modern mathematics. Students begin their study of functions in the primary grades, as they observe and study patterns. As students grow and their ability to abstract matures, students form rules, display information in a table or chart, and write equations which express the relationships they have observed. In high school, they use the more formal language of algebra to describe these relationships. Learning algebra helps students make connections in varied mathematical representations, mathematics topics, and disciplines that rely on mathematical relationships.

The Pattern, Functions, and Algebra strand develops student ability to recognize, represent, and solve problems involving relations among quantitative variables (unknown letter). The key algebraic models in the curriculum are linear, exponential, power, polynomial, logarithmic, rational, and periodic functions. Each algebraic model is investigated in four linked representations - verbal, graphic, numeric, and symbolic - with the aid of technology. Attention is also given to modeling with systems of equations, both linear and nonlinear, and to symbolic reasoning and manipulation.

Computation and Estimation: Estimation is a process that is used constantly by mathematically capable adults, and one that can be easily mastered by children. It involves an educated guess about a quantity or an intelligent prediction of the outcome of a computation. The growing use of calculators makes it more important than ever that students know when a computed answer is reasonable. The best way to make that determination is through the use of strong estimation skills. Equally important, is an awareness of the many situations in which an approximate answer is as good as, or even preferable to an exact one. Students can learn to make these judgments and use mathematics more powerfully as a result.

Geometry: Stresses the development of students' spatial awareness through active involvement in working with two- and three-dimensional shapes. The primary goal of the geometry strand is to develop visual thinking and student ability to construct, reason with, interpret, and apply mathematical models of patterns in visual and physical contexts. Geometry is a natural place for the development of students' reasoning and justification skills, The focus is on describing patterns with regard to shape, size, and location; representing patterns with drawings or coordinates; predicting changes in shapes under geometric transformations; and organizing geometric facts and relationships through deductive reasoning. Geometric ideas are useful in representing and solving problems in other areas of mathematics and in real-world situations. Geometric representations can help students make sense of area and fractions. Bar graphs and scatter plots (a graph of plotted points that show the relationship between two sets of data) can give insights about data.

Measurement: Accentuates the investigation of concepts such as length, area, volume, capacity, mass, time, and temperature. Students begin to learn how to measure by working with non-standard units and then progress to using the basic metric and customary units. Students also become familiar with telling and computing elapsed time(the amount of time that has passed since a particular process started). Telling time and using money link to an understanding of the number system and represent an important life skill. Measurement offers an opportunity for learning and applying other mathematics skills, including number operations, geometric ideas, statistical concepts, and functions. It highlights connections within mathematics and connections between mathematics and areas outside mathematics, such as Social Studies, Religious Studies, Science, Music, Art, and Physical Education.

Statistics and Probability: Emphasizes the collection, organization, and interpretation of data. The primary role of the statistics and probability strand is to develop students' ability to analyze data intelligently, to recognize and measure variation, and to understand the patterns that underlie probabilistic situations. The ultimate goal is for students to understand how inferences can be made about a population by looking at a sample from that population. . As children collect information about the world around them, they will find it useful to display and represent their knowledge in the form of tables and graphs. Utilizing probability, students need to understand the fundamental concepts so that they can interpret weather forecasts, avoid unfair games of chance (gambling, buying raffle tickets), and make informed decisions about traveling or going on a field trip. They should regularly be engaged in predicting and determining probabilities, often based on experiments (like flipping a coin 100 times), but eventually based on systematic counting strategies. High school students should use probability models and solve problems involving compound events and sampling. Probability is also linked to other mathematical content areas such as counting techniques (number and operation), ratios of areas and volumes (geometry), and relationships between functions and the area under their graphs (algebra, data analysis).

PROBLEM SOLVING

FOUR PHASES IN SOLVING A PROBLEM

In solving any problem, it helps to have a working procedure. You might want to consider this four-step procedure: *Understand, Plan, Try It, and Look Back.*

- **Understand:** Before you can solve a problem you must first understand it. Read and re-read the problem carefully to find all the clues and determine what the question is asking you to find.

What is the unknown?
What are the data?
What is the condition?

- **Plan:** Once you understand the question and the clues, it's time to use your previous experience with similar problems to look for strategies and tools to answer the question.

Do you know a related problem?
Look at the unknown! And try to think of a familiar problem having the same or a similar unknown?

- **Try It:** After deciding on a plan, you should try it and see what answer you come up with.

Can you see clearly that the step is correct?
But can you also prove that the step is correct?

- **Look Back:** Once you've tried it and found an answer, go back to the problem and see if you've really answered the question. Sometimes it's easy to overlook something. If you missed something check your plan and try the problem again.

Can you check the result?
Can you check the argument?
Can you derive the result differently?
Can you see it at a glance?

Problem Solving Skills in Mathematics

- Estimation and approximation
- Mental calculation
- Communication
- Use of mathematics tools
- Arithmetic manipulation
- Algebraic manipulating
- Handling data
- Choose the Operation
- Draw Conclusions
- Estimate Exact Answer
- Interpret the Remainder
- Make Generalizations
- Solving Multi-Steps Problems
- Reasonable Answers
- Sequence Events
- Too Much/Too Little Information
- Use a Table/Graph
- Identifying Relationships

Problem Solving Strategies

- Draw a Picture
- Make a Table
- Look for a Pattern
- Make an Organized List
- Try, Check, Revise
- Write a Number Sentence
- Act it Out
- Use Reasoning
- Work Backward
- Solve a Simpler Problem
- Make a Graph

BEST PRACTICES IN IMPROVING STUDENT ACHIEVEMENT IN MATHEMATICS

Best practices in mathematics focus on allowing students to be actively *doing mathematics* so they can build and enhance their understanding of mathematical ideas. The following links will provide more information on current NCTM math standards and best practices in mathematics. Programs should provide a curriculum that is based on research findings on how best to improve student achievement in mathematics. Those findings are summarized by Grouws and Cebulla in an ERIC Digest, January 2002. Programmes should be designed to offer supplemental instruction, which expands students' exposure to mathematical skills and concepts. Strong correlations between opportunity to learn (OTL) and the mean of student achievement scores is documented in several international studies cited by Grouws and Cebulla. Other best practices identified in this study include:

- Daily problem-solving inclusive of multiple steps problems
- Opportunities to discover and invent new knowledge
- Opportunities for student interaction and discussion
- Whole-class discussion following individual and group work
- Instructional focus on number sense
- Provision of differentiated classroom instruction using a variety of instructional methods and intervention.
- Use of manipulatives and technology
- Use of cooperative learning strategies/peer tutoring
- Integration of mathematics strands and other subjects
- Use of probing and questions skills
- Lessons that are student oriented
- Link to prior knowledge
- Fostering active inquiry and supportive interaction

- Emphasizing the real life relevance of Mathematics
- Monitoring students' progress and revise their instructional plan as needed.
- Allowing students to reason mathematically and to communicate and justify their thinking.
- Drawing on students' discovery and creativity to keep them interested.

Suggested Strategies to Improve Numeracy in the Primary School

- Give pre and post tests from grades 1-6. Pre-tests are given at the beginning of the academic year and are used to assess and group students according to their needs and direct teaching practices. Teachers of grade 4 should use the Grade Level Assessment Test (GLAT) results to identify weaknesses and strengths of their students.
- Teach to the needs of each group of students during guided mathematics activities.
- Integrate mathematics across the curriculum.
- Give tests at the end of a concept or unit. This will identify students learning and the effectiveness of teacher strategies/practices
- Give post-test at the end of the school year to determine students' successes.
- Record results from the assessments in teachers' Mark Book, portfolios, and formal reports.
- Host Mathematics competitions to give students the opportunity to compete with their peers and solidify skills and concepts taught.
- Teacher training/upgrading in mathematics instruction.

ASSESSMENT STRATEGIES

The Assessment Principle

Assessment should support the learning of mathematics, furnish useful information to both teachers and students, and be more than merely a test at the end of instruction to gauge learning. It should be a part of instruction that guides teachers and enhances students' learning.

Teachers should continuously gather information about their students through questions, interviews, writing tasks and other means. They can make appropriate decisions about such matters as reviewing materials, reteaching a difficult concept, or providing something more or different for students who are struggling or need enrichment.

Assessment is the standardized process of measuring students' performance to gather information for future developmental use. At the primary school level, National Examinations are used to assess the status of the CURRICULUM to gather qualitative information that pinpoint and diagnose strengths and weaknesses. As the examinations are diagnostic in nature, for the students to excel, they must initially be exposed to all the content areas across each strand of the Mathematics curriculum as this aspect of teaching and learning is critical to their overall success. Assessment should focus on understanding as well as procedural skills. Students learn in different ways, therefore, multiple ways of assessment should be utilized.

Secondly, students must become confident in their ability to apply the skills across all of the cognitive levels of learning. Alexander Bloom (1956), identified six levels within the cognitive domain which must be acquired if students are going to fully develop their critical thinking skills. These levels range from the simple recall or recognition of facts, as the lowest level to the analyzing and judgment of material that is classified as the highest level. The levels and accompanying skill structures are as follows:

Knowledge: Is remembering previously learned material or information. At this level, all that is required is the recall or bringing to mind the information that was previously taught.

Comprehension: Is the ability to grasp the meaning of material. This skill assesses the students' ability to effectively manipulate information. Mastery of this skill is shown by the students ability to effectively:

- translate material from one form to another (words to numbers etc.),
- interpret material (explain or summarize procedures etc.),
- estimate future trends (predicting consequences or effects and/or draw mathematical conclusions).

Learning outcomes at the comprehension level go one step beyond the simple remembering of material, and represent the lowest level of understanding.

Application: Is the ability to use previously learned material or information in new and or concrete situations. This includes the application of such things as:

- rules
- methods
- concepts
- principles
- laws
- theories

Learning outcomes in this area require a higher level of understanding than those under comprehension.

Analysis: Is the ability to break down material into its component parts so that its organizational structure may be understood. This includes:

- the identification of the individual parts of geometrical shapes, structures and units;
- the analysis of the relationships between parts and of parts to the whole structure or unit;
- recognition of the organizational principles involved in the operation of the individual parts and the structure or unit as a whole.

Learning outcomes here represent a higher intellectual level than comprehension and application because they require an understanding of both the content and the structural form of the material presented.

Synthesis: Is the ability to put parts together to form a new whole. This involves the:

- assembling or creating of a graph, table, geometric shape, patterns etc.
- organizing or arranging of a set of objects with abstract relations (scheme for classifying information etc.).
- putting together a plan of operation (research proposal)
- production of a speech, play, recital etc.

Learning outcomes in this area stress creative behaviors, with major emphasis on the formulation of new patterns or structures.

Evaluation: Is the ability to judge the value of material (statement, novel, poem, research report etc.) for a specific purpose. The judgments are to be based on definite criteria which the student may determine or be given. Learning outcomes in this area are highest in the cognitive hierarchy because they contain elements of all the other categories, plus conscious value judgments based on clearly defined criteria. Additionally, national assessments expose students to various types of questions. Hence, students must develop an appreciation for answering appropriately different types of questions among which could be found the following types of questions:

- **MULTIPLE CHOICE QUESTIONS:** Questions of the four option type that consist of a stem with one correct answer and three distracters.
- **MATCHING QUESTIONS-ONE-TO-ONE PAIRING:** Column aligned questions in which students must match options in column ‘A’ with those in column ‘B’.
- **SHORT ANSWER / COMPLETION QUESTIONS:** Questions that require the completing of a statement or question using a single word or a well-constructed sentence, or a multi-faceted mathematical process
- **STRUCTURED QUESTIONS:** Questions in which sub-question branches follow from a common stem with the easiest question first and the difficulty level increasing with the progression of the structure. These would include such skills as the interpretation of information from graphs and follow through questions.
- **FREE RESPONSE (ESSAY) QUESTIONS:** Questions that require explanation, discussion or calculation on material for which the examiner has not provided a pattern of response. In their response to this type of question, the students are expected to demonstrate communication, planning and organizational skills.

Exposure to the various questioning types allows for an in-depth assessment of students knowledge on the various subject matters as well as their ability to apply critical thinking skills. Further, National Assessments promote the use of timed tests. As success in this mode requires discipline on the part of the students, continual practice in working with timed tests and quizzes throughout the school year will provide students with regular practice in working within the allocated time frames for the various components of the examination. Given continued exposure to all curriculum content areas, the different levels of the assessment objectives, the various questioning techniques and timed tests/ quizzes on a continual basis, students will be equipped with the skills and practices that are necessary to prepare them mentally and physically to confidently write National Examinations.

PROBLEMS OF THE DAY (POD)

Students of all ages should be given the challenge to solve problems in mathematics class everyday. It is only through solving problems that they will become proficient problem solvers. Therefore, to help teachers find appropriate grade level problems, in the appendix is a collection of about 100 problems for your grade level. **Some problems have the answers and for others you have the opportunity of working them out with your students.**

How you use these problems is up to the individual teacher. Below are a few suggestions:

- i. Post a Problem of the Day (POD) in your classroom every morning and let students work on it individually or in groups throughout the day and for homework. The next day, discuss the previous day's solution and post a new POD.
- ii. Start each mathematics class with a POD. Let student work on it when they finish assignments. Discuss solutions at the end of the class.
- iii. Set aside 15 minutes per day for students to work in assigned groups on the POD.
- iv. Post a POD every other day and let students work on it after they complete other class assignments
- v. Assign a POD for homework and give extra credit to students who show evidence of attempting a solution.
- vi. Post the same POD for an entire grade level every day or every other day. Let students collect points for every problem well attempted. Which class gathers the most points?
- vii. Open every faculty meeting or department meeting with a POD just for fun!

Problem of the Day

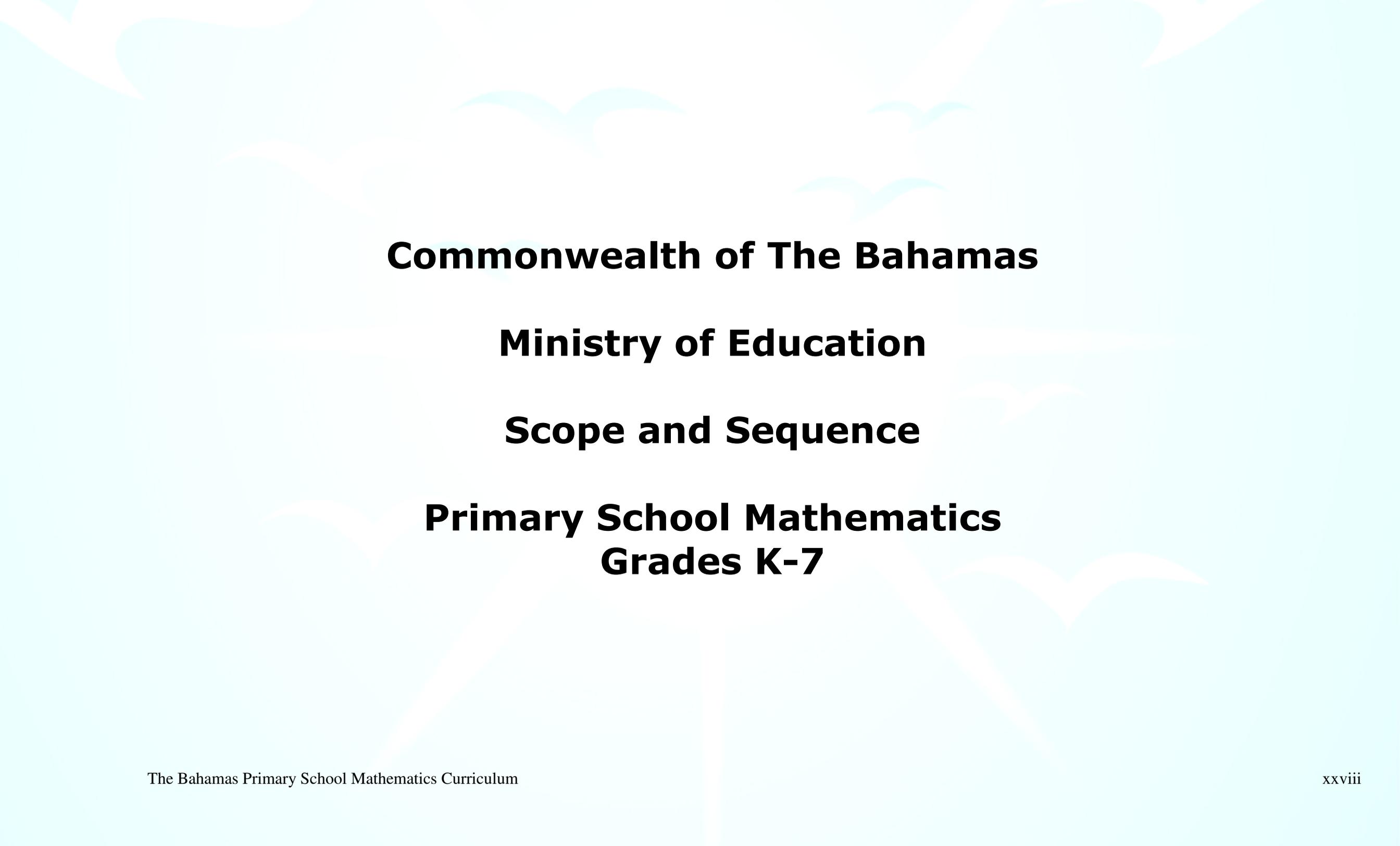
Give students a problem daily. Instead of solving the problem, break down the task. This makes it easier to model all steps in the problem-solving process. Students can

- tell what the question is asking them to do
- underline key words in the question that indicate the mathematical operation to be performed
- delete extraneous information
- identify the parts in the question
- find the best problem-solving strategy and explain why it is the best
- describe two different ways a problem could have been solved
- have students develop questions from graphic information
- share student-generated questions

- ask other students to solve the problem and justify their answers

*NOTE: No matter how you use your PODs, it is imperative that there be a class discussion of the solution(s) where students present solutions with justifications.

**NOTE: It is fun to solve problems with the class when you do not know the solution in advance Try it!

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Commonwealth of The Bahamas

Ministry of Education

Scope and Sequence

**Primary School Mathematics
Grades K-7**

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM
NUMBER AND NUMBER SENSE**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1. Identify and count “how many” in sets of objects.	I	D	D	M	A	A	M	A
2. Identify , count, write, and associate numerals and number words.	I	D	D	M	A	A	M	A
3. Connect number words and numerals to the quantities they represent (using various physical models).	I	D	D	M	A	A	M	D
4. Identify, write, and count using Roman Numerals.				I	D	A	D	M
5. Develop a sense of the position and magnitude of whole numbers and differentiate between the various classes of numbers e.g. cardinal and ordinal numbers, odd and even numbers, prime and composite, and triangular numbers etc.			I	D	D	D	D	M
6. Identify various representations of the same number /quantity and generate them by composing, and decomposing numbers.		I	D	D	M	M	M	A
7. Identify and use number values and place values within the base-ten number system.	I	D	D	A	A	D	M	M
8. Represent and compare whole numbers, decimals, and percents.				I	D	D	D	M
9. Identify and represent commonly used fractions such as $\frac{1}{4}$, $\frac{1}{3}$, and $\frac{1}{2}$. and use models, benchmarks, and equivalent forms to judge the size of fractions.		I	D	D	M	M	A	M
10. Relate/name fractions as parts of unit wholes, as parts of a collection, as locations on number lines, and as divisions of whole numbers.			I	D	A	D	M	D
11. Identify, name/write equivalent forms of commonly used fractions, and decimals, and find percentages of different amounts.				I	D	D	A	M
12. Compare and order fractions, decimals, and percents and find their approximate locations on a number line.				I	D	D	A	M

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM
NUMBER AND NUMBER SENSE**

Sub-goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions **(Continued)**

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
13. Simplify and convert fractions, decimals and percents.				I	D	A	A	M
14. Identify, write, and convert improper fractions to mixed numbers.				I	D	D	A	M
15. Compare and order fractions, decimals, and percents.				I	D	D	M	M
16. Explain the meaning of addition, subtraction, multiplication, and division and identify them with the specific vocabulary of each rule of number.	I	D	D	A	A	D	M	M
17. Use multiplication arrays to differentiate between various multiplication problems.			I	D	D	A	M	M
18. Explore positive and negative integers on a number line.							I	D
19. Identify and differentiate between prime and composite numbers.						I	D	D
20. Find the LCM and HCF of numbers.						I	D	D
21. Identify and use ratios and proportions to represent quantitative relationships.				I	D	A	A	D
22. Use appropriately exponential notations.						I	D	D
23. Describe integers, represent, and compare quantities with them.						I	D	D
24. Identify squares and square roots of numbers.						I	D	D
25. Use factors, multiples, prime factorization to solve problems.				I	D	A	M	M

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM**

PATTERNS, FUNCTIONS, AND ALGEBRA

Sub-goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1. Sort, classify, and order objects by size, amount, and other properties.	I	D	A	A	M	D	D	A
2. Identify, describe, and extend various patterns such as sequences of sounds, shapes, or simple numeric patterns, and analyze how both repeating and growing patterns are generated.	I	A	A	A	M	D	D	A
3. Use concrete, pictorial, and verbal representations to develop an understanding of invented and conventional symbolic notations.				I	D	D	M	A
4. Model situations that involve addition and subtraction of whole numbers, using objects, pictures, and symbols.				I	D	D	M	A
5. Identify and construct rectangular, triangular, oblong, L-shaped numbers.					I	D	D	M
6. Describe qualitative change using various attributes	I	D	D	M	A	A	D	D
7. Describe, extend, and generalize about geometric and numeric patterns.		I	D	M	A	A	D	D
8. Represent and analyze patterns and functions using words, tables, and graphs.			I	D	M	A	A	D
9. Identify and illustrate general principles and properties as commutative, associative and distributive, and use them to compute with whole numbers.				I	D	D	M	M

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM**

PATTERNS, FUNCTIONS, AND ALGEBRA

Sub-goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results (**Continued**)

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
10. Represent a variable as an unknown quantity using a letter or a symbol.						I	D	D
11. Express Mathematical relationships using equations						I	D	D
12. Model problem situations with objects and use representations such as graphs, tables, and equations to draw conclusions		I	D	D	M	A	A	D
13. Represent, analyze, and generalize a variety of patterns with tables, graphs, and words.		I	D	D	A	A	D	M
14. Use symbolic algebraic notations to represent situations and solve problems.							I	D

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM**

COMPUTATION AND ESTIMATION

Sub-goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1. Add and subtract whole numbers, decimals, and money, and explain their effects.		I	D	A	A	A	M	M
2. Estimate and round numbers and use the strategies to add, subtract, multiply, and divide whole numbers, decimals and money.				I	D	A	M	M
3. Explain and demonstrate situations that entail multiplication and division, such as sharing equally and equal groupings of objects. .				I	D	D	M	A
4. Develop and use strategies for whole–number computations, with focus on addition and subtraction.		I	D	M	A	M	M	M
5. Use a variety of methods and tools to compute, including: objects, mental computation, estimation, paper, pencil, and calculators.		I	D	M	A	M	M	A
6. Use the divisibility rule for division.						I	D	M
7. Explain how to multiply and divide whole numbers.			I	D	D	M	A	M
8. Describe and create relationships between operations, using division as the inverse of multiplication, to solve problems.			I	D	D	M	A	M
9. Explain and use properties of operations, such as the distributives of multiplication over addition.						I	D	D
10. Develop fluency with basic number combinations for multiplication and division, and use these combinations to compute mentally related problems such as 30 X 50.				I	D	M	A	A
11. Develop fluency in adding, subtracting, multiplying and dividing whole numbers.				I	D	M	M	A
12. Choose and use appropriate strategies to estimate the results of whole number computations and judge the reasonableness of each result.					I	D	M	A

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM**

COMPUTATION AND ESTIMATION

Sub-goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division and multiplication (**Continued**).

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
13. Apply and use strategies to estimate computations involving fractions and decimals in situations relevant to students' experience.				I	D	A	D	M
14. Use visual models, benchmarks, and equivalent forms to add and subtract commonly used fractions and decimals.				I	D	M	M	A
15. Select appropriate methods and tools for computing whole numbers: mental computation, estimation, use of calculators, paper and pencil regarding the context and nature of the computation.			I	D	M	A	A	M

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM**

MEASUREMENT

Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

Key: I = Introduce, D = Develop, M = Maintain, A = Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1. Explain and model attributes of length, area, weight, volume, and size of angle and select the appropriate type of unit for measuring.	I	D	D	A	A	D	M	M
2. Identify the attributes of length, volume, weight, area, perimeter and time, and compare and order objects according to these attributes	I	D	D	A	A	D	M	M
3. Measure objects using non-standard units e.g. multiple copies of units of the same size, such as paper clips laid end to end.		I	M	A	D	A	M	A
4. Differentiate and use standard units: customary and metric.		I	M	A	D	A	M	A
5. Develop common referents (similarities) to measure and make comparisons and estimations.	I	D	D	M	M	A	A	D
6. Identify relationships among units and convert from one unit to another within the same system.				I	D	D	M	M
7. Explore what happens to measurements of a two-dimensional shape such as perimeter and area when the shapes change in some way.					I	D	D	M
8. Identify coins and bills, and make change for given amounts.		I	A	D	D	A	D	M

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM**

MEASUREMENT

Sub-goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy (**Continued**)

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
9. Use strategies for estimating the perimeters, areas, and volumes of irregular shapes.				I	D	D	M	M
10. Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and size of angles.					I	D	D	M
11. Use formulas to find the area of rectangles and related triangles and parallelograms.						I	D	M
12. Develop strategies to determine the surface areas and volumes of rectangular solids.							I	D
13. Identify, select, and use units of appropriate methods for estimating measurements.						I	D	M
14. Select and apply techniques and tools that would accurately find length, area, volume, and angle (measures should be precise).					I	D	M	A
15. Use formulas to determine the circumference of circles and the area of triangle, parallelograms, trapezoids, and circles.							I	D
16. Solve simple problems related to measurement.	I	D	D	M	A	A	D	M

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM
GEOMETRY**

Sub-goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1. Identify, name, build, draw, compare, and sort two- and three-dimensional shapes.	I	D	D	A	A	D	M	M
2. Describe attributes and parts of two-and three-dimensional shapes.		I	D	D	M	A	A	D
3. Investigate and predict the results of putting together and taking apart two-and three-dimensional shapes.			I	D	D	M	A	D
4. Name, describe, interpret relative positions in space, and apply ideas to relative position.		I	D	D	M	D	M	A
5. Find and name locations in coordinate systems such as maps.	I	D	D	A	M	D	D	A
6. Identify and apply slides, flips, and turns to objects and shapes.			I	D	M	D	M	A
7. Identify and create shapes that have symmetry	I	D	D	M	A	A	M	D
8. Create mental images of geometric shapes using spatial memory and spatial visualization.			I	D	D	A	D	M
9. Identify and represent shapes from different perspectives.	I	D	D	A	M	D	D	A
10. Relate ideas in geometry to ideas in number and measurement.				I	D	D	M	A
11. Identify geometric shapes and structures in the environment and specify their locations.	I	D	D	A	M	M	D	D
12. Identify, compare and analyze attributes of two-and three-dimensional shapes and develop vocabulary to describe the attributes.				I	D	D	M	A
13. Classify two-and three-dimensional shapes according to their properties and develop definitions of classes of shapes such as triangles and pyramids.					I	D	D	M
14. Investigate, describe, and reason about the results of subdividing, combining, and transforming shapes.						I	D	D

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM
GEOMETRY**

Sub-goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space (**Continued**).

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
15. Describe location and movement using common language and geometric vocabulary.					I	D	D	M
16. Make and use coordinate systems to specify locations and to describe paths.				I	D	D	M	M
17. Explore congruence and similarity.						I	D	D
18. Make and test conjectures about geometric properties and relationships and develop logical arguments to justify conclusions.							I	D
19. Find the distance between points along horizontal and vertical lines of a coordinate system.						I	D	D
20. Predict and describe the results of sliding, flipping, and turning two-dimensional shapes.						I	D	D
21. Describe a motion or a series of motions that will show that two shapes are congruent.						I	D	D
22. Identify and describe line and rotational symmetry in two-and three-dimensional shapes and designs				I	D	D	M	A
23. Build and draw geometric objects.	I	D	D	A	A	M	D	D
24. Create and design mental images of objects, patterns, and paths.				I	D	D	M	A
25. Identify and build a three-dimensional object from two-dimensional representations of that object.			I	D	D	M	A	A
26. Use geometric models to solve problems in other areas of mathematics, such as number, and measurement.				I	D	D	A	M
27. Identify geometric ideas and relationships and apply them to other disciplines and problems that arise in the classroom or in everyday life.				I	D	D	A	M
28. Describe, classify, and understand relationships among types of two-and three dimensional objects using their defining properties.						I	D	D

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM
GEOMETRY**

Sub-goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space (**Continued**).

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

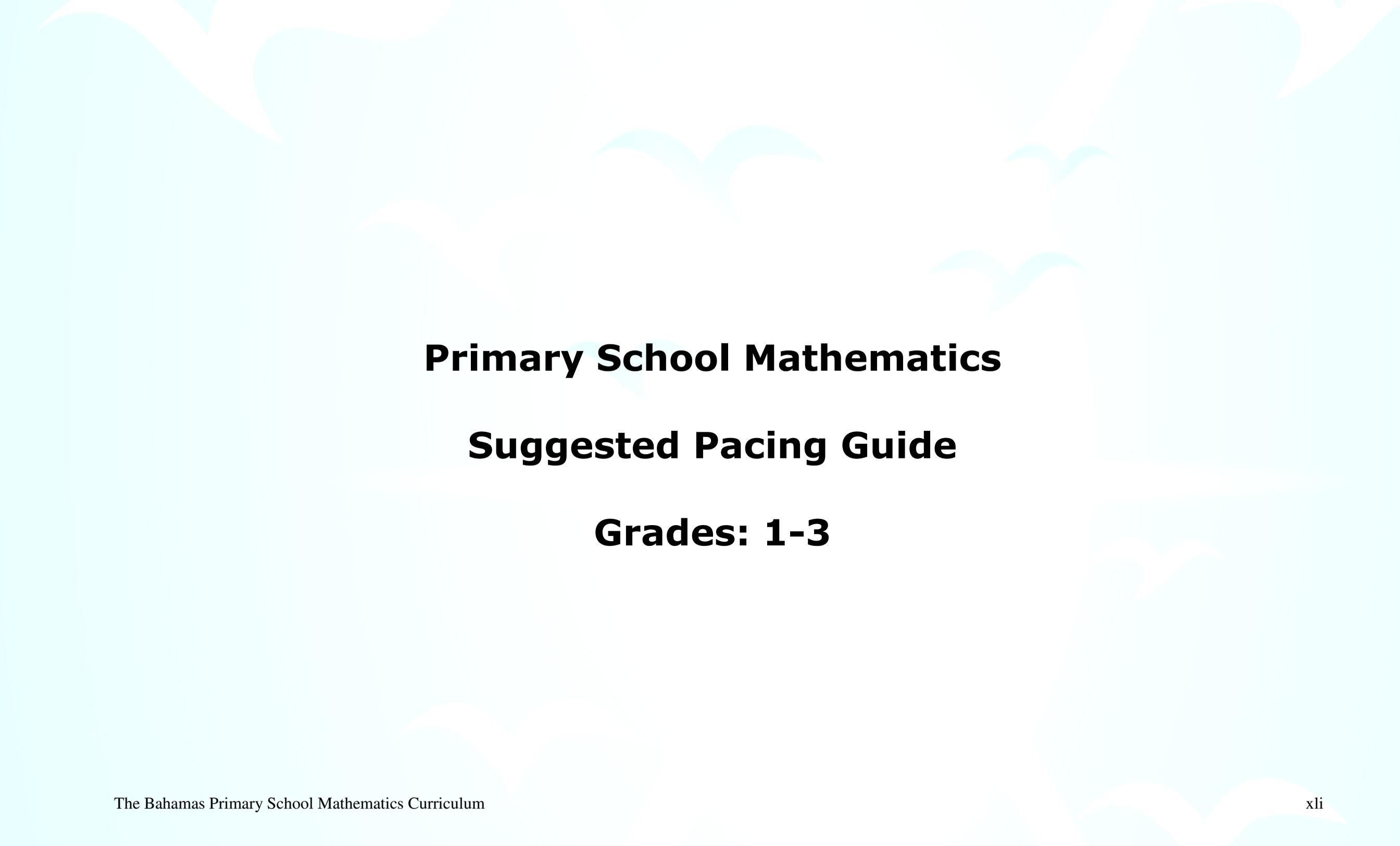
Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
29. Explain relationships among the angles, side lengths, perimeters, areas, and volumes of similar objects.						I	D	D
30. Use coordinated geometry to represent and examine the properties of geometric shapes.						I	D	D
31. Describe sizes, positions, and orientation of shapes under informal transformation such as flips, turns, and slides.					I	D	D	M
32. Identify and apply geometric ideas and relationships in areas outside the mathematics classroom, such as art, science, and every day life.				I	D	D	M	M

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM
STATISTICS AND PROBABILITY**

Sub-goal 6: Collect, organize and analyze data using statistical methods: predict results; and interpret uncertainty-using concepts of probability.

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1. Pose questions and gather data about themselves and their surroundings.	I	D	D	M	M	A	D	M
2. Sort and classify objectives according to their attributes and organize data about the objects.	I	D	D	M	M	A	D	M
3. Represent data using concrete objects, pictures, and graphs.	I	D	D	M	M	A	D	M
4. Describe parts of the data and the set of data as a whole to determine what the data show.			I	D	D	M	M	A
5. Discuss events related to students' experiences as likely or unlikely.	I	D	D	A	M	M	A	D
6. Collect data using observations, surveys, and experiments.			I	D	D	M	M	A
7. Represent data using tables and graphs such as bar graphs and line graphs.			I	D	A	D	M	M
8. Describe the shape and important features of a set of data and compare related data sets, with emphasis on how the data are distributed.					I	D	D	M
9. Compare different representations of the same data and evaluate how well each representation shows important aspects of the data.						I	D	D
10. Propose and justify conclusions and predictions that are based on data and design studies to further investigate the conclusions or predictions.						I	D	D
11. Describe events as likely or unlikely and discuss the degree of likelihood with such words as <i>certain, equally, likely, and impossible</i> .				I	D	A	M	M
12. Predict the probability of outcomes of simple experiments and test the predictions.				I	D	A	M	M
13. Formulate questions, design studies, and collect data about a characteristic shared by two populations or different characteristics within one population.					I	D	D	M

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Primary School Mathematics

Suggested Pacing Guide

Grades: 1-3

**MINISTRY OF EDUCATION
PRIMARY MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 1**

STRAND	TOPICS	DURATION				
		1 Day		2 Days	1 Week	2 Weeks
		35 mins.	60 mins.			
Number and Number Sense	1. Positioning Vocabulary Words				√	
	2. Classifying Concrete objects			√		
	3. Reading, Writing and Reciting number Sequences Through 100					√
	4. Numbers: Before and After				√	
	5. Sets Containing 0-20 Members					√
	6. Objects in Sets				√	
	7. Ordinal Positions Through Tenth				√	
	8. Sum of Two Addends					√
	9. Groups of Tens and Ones				√	
	10. Fractions ($\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{3}$) as a Whole					√
	11. Place Value of Two Digit Numbers				√	
	12. Numerator and Denominator in Fractions				√	
	13. Various Ways of Addition and Subtraction					√
Patterns, Functions, and Algebra	1. Patterns Using Pictures, Shapes and Numbers				√	
	2. Patterns from one Medium to Another				√	
	3. Skip Counting				√	

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 1**

STRAND	TOPICS	DURATION				
		1 Day 35 mins.	60 mins.	2 Days	1 Week	2 Weeks
Computation and Estimation	1. Appropriate Strategy to Determine the Answer to Facts				√	
	2. Addition and Subtraction Facts to 20				√	
	3. Solving Fact Families				√	
	4. Mental Arithmetic	√				
	5. “How Many” and “How Much” in a Given Set				√	
	6. Appropriate Method: Estimating or Counting				√	
	7. Addition and Subtraction Problem Using Solving Whole Numbers					√
Measurement	1. Comparing Lengths and Heights of Two Objects			√		
	2. Comparing Lengths/heights of Objects: Non-standard Units			√		
	3. Comparing Using Standard and Non-Standard Units to Estimate			√		
	4. Measuring Using Metric Units (metre, centimetre)			√		
	5. Comparing Masses		√			
	6. Hot and Cold		√			
	7. Comparing Surfaces Objects to Determine Equality of Areas				√	
	8. Appropriate Time of Day		√			
	9. Days and Weeks on the Calendar			√		
	10. Months of the Year in Order			√		
	11. Hour and Half-hour on an Analog Clock					√
	12. Counting Coins up to 25 cents					√
	13. Equivalent of Other Coins Values in Pennies			√		
	14. Money Value Through Exchange				√	

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 1**

STRAND	TOPICS	DURATION			
		1 Day 35 mins.	60 mins.	1 Week	2 Weeks
Geometry	1. Use of Venn Diagrams 2. Triangle, Squares, Rectangles and Circles in Different Orientations 3. Basic Solid Shapes			√	
				√	
					√
					√
					√
Statistics and Probability	1. Graphs and Pictographs 2. Use of Vocabulary: Less, Greater Than, and Less Than 3. Prediction About Graphs 4. Concept of Chance 5. Describing Terms: Likely and Unlikely				√
					√
					√
				√	
				√	

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 2**

STRAND	TOPICS	DURATION				
		1 Day		2 Days	1 week	2 weeks
		35 mins.	60 mins.			
Number and Number Sense	1. Numbers from 0 to 20 on a Number Line			√	√	
	2. Number Sequences				√	
	3. Ascending and Descending Order of Numbers				√	
	4. Positioning Numbers of Ordered Sets				√	
	5. Two-digit Number in Terms of Tens and Ones				√	
	6. Place Value of a Three-digit Number				√	
	7. Whole Numbers Between 0-999				√	
	8. Odd and Even Numbers				√	
	9. Parts of a Whole				√	
	10. Fractional Parts of a Whole				√	
Patterns, Functions, and Algebra	1. Action and Repeated/Grouping Patterns				√	
	2. Patterns				√	
	3. Skip Counting up to 999				√	
	4. Missing Numbers on a Number Line				√	
	5. Objects in a Set				√	
	6. Non-Routine Problems				√	

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 2**

STRAND	TOPICS	DURATION				
		1 Day		2	1	2
		35 mins.	60 mins.	Days	Week	Weeks
Computation and Estimation	1. Addition and Subtraction Facts up to Twenty				√	
	2. Facts to Mental Math				√	
	3. Strategies for Sums and Differences				√	
	4. Fact Families Using Addition and Subtraction				√	
	5. Two-Digit Numbers				√	
	6. The Difference of Two-digit Numbers				√	
	7. Objects in a Set Using 0, 10, and 100				√	
	8. Finding Sums and Differences				√	
	9. Multiplication as Repeated Addition					√
	10. Division as Repeated Subtraction					√
	11. Solve Problems in Addition and Subtraction Using Whole Numbers				√	
						√
Measurement	1. Nearest Meter, Centimeter, or Decimeter				√	
	2. Measuring Area Using Nonstandard Units				√	
	3. Objects Using Metric Measurements				√	
	4. Mass of Familiar Objects Using Metric: Grams and Kilograms				√	
	5. Measure and Compare Temperatures				√	
	6. Appropriate Parts of the Day				√	
	7. Sequencing Days of the Week and Months of the Year				√	
	8. Calendar for The Month, Year, and Date				√	
	9. Associations Between Months, Days, and Weeks on Calendar				√	
	10. Equivalent Relationships Between Days, Months, Years and Hours				√	
	11. Time, to the Hour, Half Hour and Quarter on an Analog Clock				√	
	12. Using Coins and Bills				√	
	13. Compare and Make Change Using a Collection of Coins					√
	14. Symbols: \$, ¢ and Decimal Point				√	
	15. Solve Problems Using Whole Numbers and Money				√	

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 2**

STRAND	TOPICS	DURATION				
		1 Day		2 Days	1 Week	2 Weeks
		35 mins.	60 mins.	Days	Week	Weeks
Geometry	1. Properties of Common Plane Shapes				√	
	2. Classifying Flat Shapes				√	
	3. Identifying a Spheres, Cones, Cubes and Cylinders				√	
	4. Classifying Solid Shapes				√	
	5. Differentiating Between Plane and Solid Shapes				√	
	6. Lines of Symmetry				√	
	7. Relationships: In Coordinate System and Maps				√	
Statistics and Probability	1. Interpreting Data: Concrete and Pictographs				√	
	2. Interpret Data on Horizontal and Vertical Bar Graphs				√	
	3. Predictions from Graphs				√	
	4. Using Likely and Unlikely to Everyday Situations/Events				√	
	5. Range and Mode				√	

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 3**

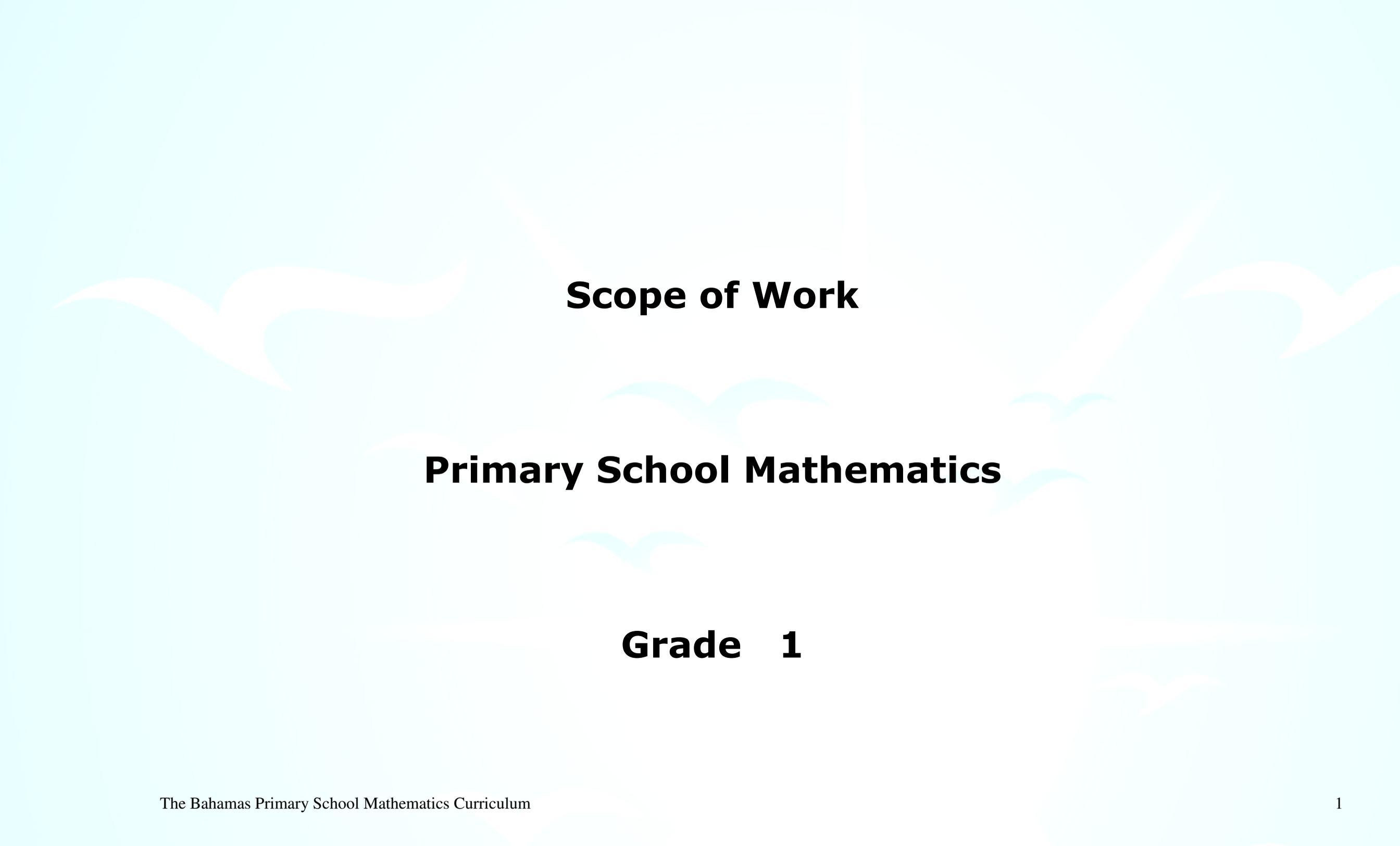
STRAND	TOPICS	DURATION				
		1 Day		2	1	2
		35 mins.	60 mins.	Days	Week	Weeks
Number and Number Sense	1. Ordinal Numbers to Identify Positions	√				
	2. Reciting Sequences of Numbers Through 9999			√		
	3. Places and Values of Given Digits up to 9999				√	
	4. Four-digit Numbers in Expanded Form				√	
	5. Compare and Order Numbers Through 9999			√		
	6. Roman Numbers to XXV (25)			√		
	7. Converting Combinations of Roman Numbers			√		
	8. Using Numbers in Everyday Life		√			
	9. Explaining the Relationship Between Odd and Even Numbers		√			
	10. Counting to 100 by 2s, 3s, 4s, 5s, 10s and 50s			√		
	11. Rounding to the Nearest Tens and Hundreds				√	
	12. Fractions Representations		√			
	13. Relationship Between a Fractional Part and its Whole		√			
	14. Ordering Fractions With the Same Denominator			√		
	15. Equivalent Fractions					
	16. Ordering Fractions with Different Denominator				√	
	17. Simplest Form of Fractions				√	
	18. Representations for Tenths and Hundredths				√	
Patterns, Functions, and Algebra	1. Numerical and Symbolic Patterns		√			
	2. Missing Numbers on a Number Line	√				
	3. Patterns Identification	√				
	4. Expressions Using =, > and <		√			

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 3**

STRAND	TOPICS	DURATION				
		1 Day		2 Days	1 Week	2 Weeks
		35 mins.	60 mins.			
Computation and Estimation	1. Addition and Subtraction Facts Through 20: Three Seconds	√				
	2. Sums and Differences		√			
	3. Addition and Subtraction of Money			√		
	4. Computational Problems in Addition Using Whole Numbers: With and Without Regrouping				√	
	5. Computational Problems in Subtraction Using Whole Numbers: With and Without Renaming				√	
	6. Multiplication as Repeated Addition			√		
	7. Multiplication Using Arrays			√		
	8. Multiplication and Division Facts Through 9 x 9					√
	9. Multiplying Numbers with at Least Two Digits by One Digit				√	
	10. Solving Multiplication Problems				√	
	11. The Meaning of Division		√			
	12. Relationship Between Multiplication and Division					√
	13. Division as Repeated Subtraction				√	
	14. Multiplying Numbers Up to 9 999 by a One-Digit Number					√
	15. Dividing Numbers Up to 9 999 by a One-Digit Number					√
	16. Measurements in Compound Units				√	
	17. Multiplying and Dividing Tens, Hundreds, and Thousands					√
Measurement	1. Time to The Nearest Five Minutes			√		
	2. Events Taking The Same Amount of Time, More, or Less Time					
	3. Vocabulary for Time		√		√	
	4. Equivalent Periods of Time					
	5. Calendar Identifying Specific Dates				√	
	6. Elapsed Time					√
	7. Converting Between Units of Time				√	
	8. Recording Temperatures				√	
	9. Measuring Length Metres, Decimetres Centimetres			√		
	10. Perimeter of Polygons: Standard and Non Standard Measurements			√		
	11. Finding Area of Shapes: Non-Standard and Standard Measurements			√		

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 3**

STRAND	TOPICS	DURATION				
		1 Day		2 Days	1 Week	2 Weeks
		35 min	60 min			
Measurement	12. Measuring Capacity: Litres and Millilitres			√		
	13. Estimating and Measuring Mass: Grams and Kilograms			√		
	14. Converting Units Within Systems Using Multiplication				√	
	15. Make Change for Purchase of \$20.00 or Less				√	
Geometry	1. Common Shapes (Plane and Solid) Line Segments		√			
	2. Points, Lines, and Using Rulers and Straight Edges			√		
	3. Lines of Symmetry				√	
	4. Slides, Flips, and Turns				√	
Statistics and Probability	1. Recording and Interpreting Data			√		
	2. Parts of a Graph			√		
	3. Data Representation Including Range and Mode				√	
	4. Analyzing and Drawing Conclusions From Graphs				√	
	5. Using Terms: Possible, Impossible, Always, and Sometimes			√		



Scope of Work

Primary School Mathematics

Grade 1

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 1

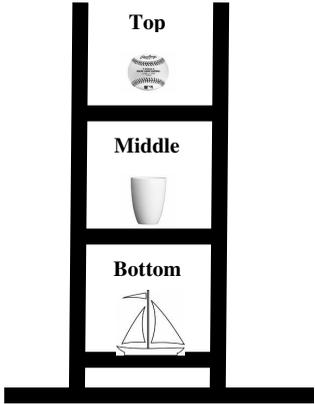
Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

Essential Questions

1. What are some different ways we can group (sort, classify) objects?
2. How can I order a set of numbers from greatest to least?
3. How do we use numbers everyday?
4. How do you predict what might come next in a pattern?
5. What is a fraction?

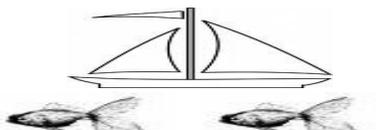
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 1**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. (a) Use positional vocabulary words (eg. Top, middle bottom, above, below, over, under, up, down, inside and outside) to describe the location of objects (Continued).</p> <p>b. Assemble Objects using positional vocabulary words (e.g. top...)</p>	<div style="text-align: center;">  </div> <ul style="list-style-type: none"> ▪ Top: The upper most part or point of something. ▪ Middle: The centre of something. Equal distance from the ends or outer edges of something e.g. the middle finger. ▪ Bottom: the deepest or lowest part. For example, The bottom of a well; the bottom of the page. 	<ul style="list-style-type: none"> • Display a large picture of a tree with the roots showing. Have students point to and identify the top, middle and bottom of a tree. • Cover a bulletin board. Draw a horizontal, squiggly line across the middle of the paper to represent the surface of the ocean. Ask students to create a class mural showing what is above the water and what is below the water. • Take the students outside for a walk. Have student look up and down, and then describe what they see. 	<ul style="list-style-type: none"> • Silver Burdett Ginn Mathematics Level K • Manipulatives • Harcourt Math Bk. K pg. 1-12 	<ul style="list-style-type: none"> • Have students draw pictures on a sheet using positional words. For example, draw a dog under a chair.

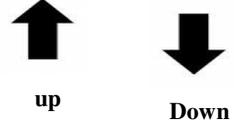
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 1

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. (a) Use positional vocabulary words (eg. Top, middle bottom, above, below, over, under, up, down, inside and outside) to describe the location of objects</p> <p>(b) Assemble objects using positional vocabulary words (E.g. top...) Continued.</p>	<p style="text-align: center;">Above</p>   <p style="text-align: center;">Below</p> <ul style="list-style-type: none"> • The fish are under the boat and the sun is over the boat. • Above: Higher than; on or over the upper surface; over • Below: under or lower in place. • Over: In or at a position above or higher than; gliding over the sea grape tree.  <p style="text-align: center;">On</p> <p style="text-align: center;">Under</p>			

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 1**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. (a) Use positional vocabulary words (eg. Top, middle bottom, above, below, over, under, up, down, inside and outside) to describe the location of objects</p> <p>(b) Assemble Objects using positional vocabulary words (E.g. top...)</p>	<ul style="list-style-type: none"> • On: The top of the surface E.g. The link cube is on the table. • Under: in a lower position or place than. E.g. The roach is under the picture. <div style="text-align: center;">   </div> <ul style="list-style-type: none"> • Up: In a higher position or level. • Down: Being or moving lower in position • Inside: The part of lying within; An interior or internal part of place • Outside: In the open air rather than inside a building. 			
<p>2. Sort and classify concrete objects according to the attributes of size, color, texture, shape and mass (Continued).</p>	<ul style="list-style-type: none"> • Items/objects can be grouped or classified according to their size, shape, color, texture and mass. 	<ul style="list-style-type: none"> • Give students assorted cereals and crackers in different shapes and sizes and a paper plate divided into three sections. 	<ul style="list-style-type: none"> • Harcourt Math Bk. K pg. 5A • Harcourt Math Bk. 1 pg. 213 	<ul style="list-style-type: none"> • Sort attribute blocks by color, shape, and/ or size.

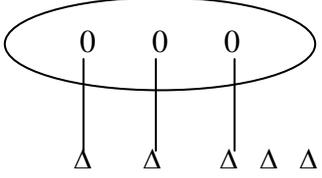
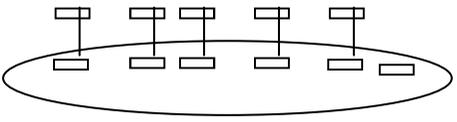
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 1**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Sort and classify concrete objects according to the attributes of size, color, texture, shape, and mass.		<ul style="list-style-type: none"> In groups, have children sort snacks by color, shape, or size onto the paper plates. Students tell how they sorted their snacks. 	<ul style="list-style-type: none"> Silver Burdett Ginn Mathematics Level K Link cubes Attribute blocks 	
3. Read, write and recite number sequences through 100.	<ul style="list-style-type: none"> Introduce numbers from 0 to 100. Introduce number words zero to twenty. Have students place numbers in sequences from greatest to least and from least to greatest. Eg. 15, 29, 9, 100, 89 Answer: 9, 15, 29, 89, 100 	<ul style="list-style-type: none"> Have students count classroom objects up to 100, such as counters or other manipulatives. Take students on a nature walk. Have them draw small pictures of what they observe, like trees, grass, and bugs. Number the pictures for the class and display them in order. Take students on additional walks, until the class has recorded 100 observations 	<ul style="list-style-type: none"> www.harcourtschool.com Harcourt Math Bk. K pgs. 139-152 Silver Burdett Ginn Bk. K. 	<ul style="list-style-type: none"> Have students put numbers in numerical order.
4. Name the number before or after a given number and justify the response.	<ul style="list-style-type: none"> The number before means the number in front of. The number before is less than the number after it. For example: 41 is before 42 The number after: Following in time or place. The number after is greater than the number before. For example: 45 is after 44. 	<ul style="list-style-type: none"> Number tags consecutively and give one to each child. Have children wear the tags and arrange themselves in numerical order. Then give children oral directions that include actions, numbers, and the words before or after. For example, "If you have the number after 26 jump up and down." 	<ul style="list-style-type: none"> Harcourt Math Bk.1 pg. 149 Hundred Chart Number Flash Cards 	<ul style="list-style-type: none"> Fill in missing numbers in a sequence.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 1

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
5. Identify, explain and create sets containing 0 - 20 members.	<ul style="list-style-type: none"> A set is a collection of objects When students count, they name each number and must point to one and only one object. The last number named tells how many are in the counted group. <p>Sets 0 to 20</p>	<ul style="list-style-type: none"> Have students make number books showing sets of zero to twenty objects. Distribute up to twenty beads and yarn or string to each student. Have students select a favorite number 10 to 20 and make a necklace. Have students count the beads on each other's necklaces. 	<ul style="list-style-type: none"> Harcourt Math Bks. K pgs. 139-148 Silver Burdett Ginn Mathematics Bk. K 	<ul style="list-style-type: none"> Match numeral cards with its corresponding set cards 0 to 20.
6. Match, identify, and explain objects in sets (one- to- one) to identify sets that are more, less or equal to (Continued).	<ul style="list-style-type: none"> Less: smaller in quantity or amount  <ul style="list-style-type: none"> More: greater in quantity or amount 	<ul style="list-style-type: none"> Have students find, cut, and past pictures from magazines that show groups of objects. Ask them to draw more objects next to each picture. (Use more, less and/or equal to). Have students draw a flower with up to five petals. Then have pairs switch drawings and draw a different flower on another paper with the same number of petals as their partner's flower. 	<ul style="list-style-type: none"> Harcourt Math Bk. K Silver Burdett Ginn Bk. K pg. 1 	<ul style="list-style-type: none"> Match objects in two groups using one -to- one correspondence to determine if the group has more, less or equal.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 1

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
6. Match, identify, and explain objects in sets (one- to- one) to identify sets that are more, less or equal to.	<ul style="list-style-type: none"> Equal to: alike/same in quantity or amount. E.g. $\begin{array}{ccc} \uparrow & \uparrow & \uparrow \\ 0 & 0 & 0 \end{array}$ 			
7. Identify and explain ordinal positions first through tenth.	<ul style="list-style-type: none"> Ordinals: Numbers used to show the relative position of somebody or something in a sequence, e.g. "first," "sixth," or "10th" 	<ul style="list-style-type: none"> Use ordinals as a part of daily class routines such the first child in the line may open the door." Label beanbags with ordinals first through tenth. Arrange them on the playground. Give students directions using ordinal words and actions, such as "Run to third base" .When all bases are filled, allow students to say the ordinals in sequence. 	<ul style="list-style-type: none"> Harcourt Math Bk.1 pg. 159 Silver Burdett Ginn Mathematics Bk. 1 pg. 27 	<ul style="list-style-type: none"> Give student a worksheet with pictures of objects lined up. Ask them to "color the sixth item" In the next row "color the second object," etc.
8. Explain and represent a number as the sum of 2 addends.	<ul style="list-style-type: none"> Expressions must be understood as single quantities. For example 4+2 is another way of writing 6. Other ways of writing 6: $\begin{array}{ll} 1 + 5 = 6 & 4 + 2 = 6 \\ 3 + 3 = 6 & 5 + 1 = 6 \\ 2 + 4 = 6 & 0 + 6 = 6 \\ 6 + 0 = 6 & \end{array}$ 	<ul style="list-style-type: none"> Give each student a recording sheet and 10 counters or any other numbers you want to work with. Have students record all the possible ways to show 10 on their sheets. Then write the number sentence of all the possible addends to make ten. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 pg. 19 Manipulatives www.edhelper.com 	<ul style="list-style-type: none"> Have students write number sentences.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 1

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
9. Explain and represent numbers as groups of tens and ones.	<ul style="list-style-type: none"> Ten: one more than 9 1 ten   1 ones 10 ones = 1 ten <ul style="list-style-type: none"> The positions of digits in numbers determine their value. 	<ul style="list-style-type: none"> Use link cubes to regroup single ones into groups of ten. Give students in groups cubes or base ten blocks. Call out a number to the class such as 25. Have students show it as 2 groups of 10 and 5 ones. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 pg. 129 Silver Burdett Ginn Bk.1 pgs. 165-172 www.edhelper.com Link cubes Base ten cubes 	<ul style="list-style-type: none"> Model numbers using connecting cubes or place value models.
10. Identify, explain, and write the fractions $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{3}$ as part of a whole.	<ul style="list-style-type: none"> One half ($\frac{1}{2}$). One out of two equal parts of a whole or group.  $\frac{1}{2}$ is shaded <ul style="list-style-type: none"> One fourth, ($\frac{1}{4}$). One of four equal parts of a whole or group.  $\frac{1}{4}$ is shaded	<ul style="list-style-type: none"> Give students paper shapes. In pairs have students divide and cut shapes into halves fourth and thirds. Find a basic recipe for making paste, punch, and cookies etc that use $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$ cup, teaspoon or tablespoons. Use measuring cups and spoons. Allow student to prepare the recipe. During the measuring, discuss the units being used as part of a whole cup or spoon. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 pg. 351-357 Silver Burdett Ginn Bk. 1 pgs.- 151-154 www.mathslice.com Fractional cutouts of $\frac{1}{4}$, $\frac{1}{3}$. and $\frac{1}{2}$ 	<ul style="list-style-type: none"> Name fractional parts ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$) of a whole.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 1**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT				
10. Identify, explain, and write the fractions $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{3}$ as part of a whole (Continued).	<ul style="list-style-type: none"> One third ($\frac{1}{3}$). One of three equal parts of a whole or group is shaded. 							
11. Identify the place value of each digit in a two digit number.	<ul style="list-style-type: none"> The position of the digits in a number determine their values; for example $73 = 7$ tens + 3 ones. In place value, each position has a value ten times greater than the position to its right. $27 = 2$ tens + 7 ones or 7 ones is first place on the right. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Tens</td> <td>Ones</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">7</td> </tr> </table>	Tens	Ones	2	7	<ul style="list-style-type: none"> Have students take a handful of pennies, count them, then use base-ten blocks to show how many they have. Students can record the number. Shuffle cards with numbers 10 to 99. Have one child pick a card and state the value of each digit of the number selected. 	<ul style="list-style-type: none"> Connecting cubes Base ten blocks www.harcourtschool.com Silver Burdett Ginn Mathematics Bk. 1 Harcourt Math Bk. 1 pgs. 129-134 Place Value Mats 	<ul style="list-style-type: none"> Have students work in pairs. Have them flip to a page in the middle of their reading textbooks. Children record the page number as tens and ones on a place value mat and using base ten blocks.
Tens	Ones							
2	7							
12. Explain the role of the numerator and denominator in fractions.	<ul style="list-style-type: none"> Numerator: the number above the bar of a fraction. It is the number that is to be taken, given, left, or closed. For example $\frac{1}{4}$ - 1 is the numerator. It means 1 equal part out of four equal parts of the whole. Denominator: the number below the bar in a fraction. For example $\frac{1}{4}$: 4 is the denominator. It tells how many equal parts the whole was shared into. 	<ul style="list-style-type: none"> Have students play a card game in which they match the fraction names to pictures representing the fractions. 	<ul style="list-style-type: none"> Harcourt Math Bk.1 pg. 355 Fraction bars 	<ul style="list-style-type: none"> Distinguish between $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{1}{3}$ Identify the numerator and denominator in given fractions. E.g. $\frac{1}{4}$; $\frac{1}{2}$; and $\frac{1}{3}$. 				

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 1**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
13. Explain the concept of addition and subtraction through words, pictures, or with concrete objects.	<ul style="list-style-type: none"> • Addition is joining two or more objects/ elements to obtain a total/result. • Subtraction is taking away one or more objects from a group of objects. 	<ul style="list-style-type: none"> • Demonstrate addition and subtraction story problems using flannel boards or concrete objects. 	<ul style="list-style-type: none"> • Harcourt Math Bk.1 pgs 3-8 ; 31-34 • Counters 	<ul style="list-style-type: none"> • Have students write and solve their own story problems using pictures.
14. Justify solutions to a problem.	<ul style="list-style-type: none"> • Justify: Prove that the answer is right. • Problem solving strategies. <ul style="list-style-type: none"> a. Make a model - solving problems with concrete objects. b. Draw a picture creating their own representations that can help them find answers. c. Act it out – dramatize situations 	<ul style="list-style-type: none"> • Have students work in small groups to solve story problems. 	<ul style="list-style-type: none"> • Silver Burdett Ginn Bk. 1 pgs. 83A & 83 • Harcourt Math Bk. 1 pg. 201 	<ul style="list-style-type: none"> • Complete activity sheet with story problems.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE: 1

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

Essential Questions

1. What patterns do you see every day?
2. How do you predict what might come next in a pattern?
3. How is skip counting related to patterns?

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE: 1

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Identify, produce, describe and extend patterns using pictures, shapes and numbers.	<ul style="list-style-type: none"> In patterns, shapes, colors, or numbers are repeated so that you can predict what comes next. 	<ul style="list-style-type: none"> Provide small groups with nature magazines. Have students find examples of patterns in nature. For example patterns on the fur of animals (zebra). 	<ul style="list-style-type: none"> Harcourt Math Bk. K pgs. 25, 319 link cubes magazines Silver Burdett Ginn Mathematics Bk. K pg. 25 www.edhelper.com Cut out shapes 	<ul style="list-style-type: none"> Have students create patterns.
2. Translate patterns from one medium to another.	<ul style="list-style-type: none"> Translate: Representing the same pattern in a different way. For example colors to numbers and shapes to rhythms. <p>For example: Pictures to Numbers</p> 	<ul style="list-style-type: none"> Post examples of different patterns. Ask students to choose a pattern and translate it into a different representation. Collect work and display patterns. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 pg. 31B Link cubes 	<ul style="list-style-type: none"> Have students create patterns where they translate from one medium to another.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE: 1**

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Skip count to 100 by 2s, 5s and 10s, and explain the patterns	<ul style="list-style-type: none"> • When you skip count, you get to a total faster by passing over numbers. • Counting by 2s: 2, 4, 6, 8, 10, 12..... • Every other number is counted when counting by twos. • Counting by 5s: 5, 10, 15, 20, 25..... • When counting by 5s it is important to note that the numbers end with 0 or 5. • Counting by 10s: 10, 20, 30, 40, 50... • When counting by 10s, the numbers end with 0 	<ul style="list-style-type: none"> • Make a number line to 50 on the floor. Students stand on the line at intervals of 2 and skip count by twos. Repeat with intervals of 5 and 10. • Give each student a one hundred chart. Skip count by 2s (or 5s or 10s) aloud. • Create and share several counting rhymes with the class. Encourage students to create their own skip counting rhymes. For example: 2, 4, 6, 8. What do we appreciate? 0, 12, 14, 16. All that's fair and good and clean." 	<ul style="list-style-type: none"> • Harcourt Math Bk. 1 pg. 163 • Silver Burdett Ginn Mathematics Bk. 1 pgs. 187 & 188 	<ul style="list-style-type: none"> • Have students color patterns (Counting by 2s, 5s or 10s) on a hundred charts.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION**

GRADE: 1

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations of additions, subtraction, division and multiplication.

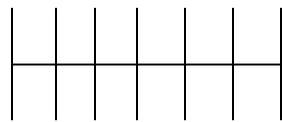
Essential Questions

1. How can you find the missing number in an addition equation?
2. What strategies help us solve addition and subtraction word problems?
3. How can you create a story to match an addition or subtraction equation?
4. What are fact families and how do they help us add and subtract?
5. How do fact families help us with addition and subtraction facts?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION**

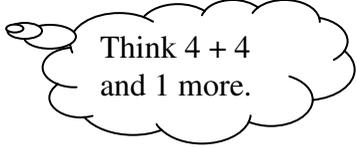
GRADE: 1

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; additions, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Explain and use an appropriate strategy to determine the answer to a given fact (Continued).	<ul style="list-style-type: none"> • In all: total quantity or amount. • Sum: the answer to an addition problem. • Plus (+): a symbol that shows addition. • Equal (=) has the same value. • Addition sentence: A number sentence used to show addition. • Addends: the numbers to be added. E.g. $1 + 4 = 5$ • Addition: the process of joining two groups. • <u>Addition Strategies.</u> <ul style="list-style-type: none"> a. Count on: Mental strategy used when an addend is 1, 2, or 3. $6 + 2 = 8$ Say 6. Count on 2 6 7 8 b. Doubles: Two addends that are the same. $2 + 2 = 4$ 	<ul style="list-style-type: none"> • Distribute counters to pairs of students. Have each pair line up and place 2 to 6 counters on a table. Have one child in the pair say the number of counters in the set and then count on to add 1 or 2. Direct the second student to check the sum. Repeat the activity several times, while students exchange roles. • Place a number line across the classroom floor. Give students short story problem such as: Tom has 5 toys cars. Dad gives him 1 more. How many toy cars does he have in all? e.g.  0 1 2 3 4 5 6 • Have student say the greater addend and stand on that number using addition facts. He/she should count on aloud, take 1, 2 or 3 steps on the number line, and give the sum. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 1 pgs. 64 & 92 • Silver Burdett Ginn Mathematics Bk. 1 pgs. 97-115 • www.mathslice.com • www.themathworksheetsite.com • connecting cubes 	<ul style="list-style-type: none"> • Have students show, in their Mathematics Journals, the ways to find the sum of two numbers.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 1

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; additions, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Explain and use an appropriate strategy to determine the answer to a given fact.</p>	<p>c. Doubles Plus One: An addition fact in which one addend is one greater than the other.</p> <p style="text-align: center;">$4 + 4 = 8$</p> <div style="text-align: center;">  <p>Think 4 + 4 and 1 more.</p> </div> <p style="text-align: center;">$4 + 5 = 9$</p> <p>d. Make a Ten: add onto one addend to make a ten and then add the rest.</p> <ul style="list-style-type: none"> Subtraction Strategy <ul style="list-style-type: none"> a. Count Back: Mental math strategy used when the number to be subtracted is 1, 2 or 3. 	<p>For example $4 + 2 = \underline{\quad}$ The sum is 6.</p> <ul style="list-style-type: none"> On a drum or tambourine make a series of identical sounds, such as 5 beats. Ask students to listen carefully and produce the double of the set of sounds heard by clapping. Have students write the addition sentence that shows how many sounds in all; for example $5 + 5 = 10$. Sing songs such as “Ten little Monkey Jumping in the bed”. Students will use appropriate strategy to solve the problem. 		

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 1**

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; additions, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Recall addition and subtraction facts up to 20.	<ul style="list-style-type: none"> • Order property: Numbers can be added in any order. The order of the addends does not affect the sum. <ul style="list-style-type: none"> e.g. $2 + 3 = 5$ $3 + 2 = 5$ Subtraction Facts <ul style="list-style-type: none"> $7 - 1 = 6$ $4 - 3 = 1$ 	<p>Fact Feud</p> <ol style="list-style-type: none"> a. Divide the class into teams. b. Randomly select addition/subtraction fact cards. c. Read the fact card aloud. d. Allow the first player who hits the ball to give the answer. If the player answers correctly, he/she moves to the back of the line. The child on the other team sits down. e. Continue until all the students are seated. The group with the last student to be seated wins. 	<ul style="list-style-type: none"> • Harcourt Math Bk.1 pgs. 16 & 399 • Silver Burdett Ginn Mathematics Bk. 1 pg. 1 • www.edhelper.com • www.mathslice.com 	<ul style="list-style-type: none"> • Quiz
3. Identify and solve fact families.	<ol style="list-style-type: none"> f. A fact family is group of numbers that can be added or subtracted to get another number in the fact family. g. There are only three numbers in each family. <ul style="list-style-type: none"> e.g. 5, 8, 13 $8 + 5 = 13$ $5 + 8 = 13$ $13 - 8 = 5$ $13 - 5 = 8$ 	<ul style="list-style-type: none"> • Fact Family Mobile Have small groups make fact family mobiles to tell about members of a household. For example: One group might use the fact 3, 2, 5, to show the number of children and adult. • Write the facts on an index card $3 + 2 = 5$, $2 + 3 = 5$, $5 - 3 = 2$, $5 - 2 = 3$ and tape it to the hanger. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 1 pgs. 97, 113, 119 • Silver Burdett Ginn Mathematics Bk.1 • www.edhelper.com 	<ul style="list-style-type: none"> • Interviews: Students ask classmates questions on fact family. <ul style="list-style-type: none"> e.g. How many addition sentences make up a fact family?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 1**

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; additions, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
4. Use mental arithmetic	<ul style="list-style-type: none"> • Use mental mathematics strategies like: <ul style="list-style-type: none"> • Using doubles • Making ten • One more, one less 	<ul style="list-style-type: none"> • Have pairs of students write addition or subtraction sentences on index cards. Partners exchange cards and write the answer to the number sentence on the back of each card. 	<ul style="list-style-type: none"> • enVisionMath Bk.1 	<ul style="list-style-type: none"> • Quiz
5. Estimate “how many” and “how much” in a given set up to 20.	<ul style="list-style-type: none"> • Estimation: Finding a value that is close enough to the right answer, usually with some thought or calculation involved. 	<p>Pumpkin Estimation</p> <p>a. Teacher shows a pumpkin and asks students in cooperate groups to guess how many seeds are inside.</p> <p>b. After discussing with students write the estimated amount on a card.</p> <p>c. Teacher cuts pumpkin and asks a student to count the seeds. The team that has the closest estimate is the winner. Member from group explains how the estimation was done.</p>	<ul style="list-style-type: none"> • Harcourt Math Glossary 	<ul style="list-style-type: none"> • Activity sheet on Estimation.
6. Identify whether estimation or counting is appropriate with support.	<ul style="list-style-type: none"> • Estimating is appropriate when: <ol style="list-style-type: none"> a. an exact value is impossible or impractical to obtain (e.g., the number of stars in our galaxy). b. an approximate value is adequate (e.g., the number of people who will attend a party). 	<ul style="list-style-type: none"> • Give students scenarios where they will state whether they will use counting or estimation to get the answer. 	<ul style="list-style-type: none"> • www.teachervision.fen.com 	<ul style="list-style-type: none"> • Have students write scenarios and solve the problems indicating whether estimation or counting was used.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 1**

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; additions, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>7. Create and solve addition and subtraction problems using whole numbers and estimation.</p>	<ul style="list-style-type: none"> • The words in all and altogether are associated with addition. • Not because the words “in all” and “altogether” are used you always add. The context in which the words are used determine the operation. This holds true for words used in subtraction. • Addition is required when the answer should be more. • The words ‘left’ and ‘many more than’ are associated with subtraction. Subtraction is required if the answer should be less. • Problem Solving Strategies <ol style="list-style-type: none"> a. Act it out b. Write a number sentence c. Make a model d. Draw a picture. 	<ul style="list-style-type: none"> • Have children act out addition or subtraction stories as you read them aloud. Then have volunteers write number sentences that describe what happened. • Give small groups 10 one-cent coins. Have students create original stories using the coins. Children model each other’s stories. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 1 pgs. 37, 73, 47, 90, 95 • Silver Burdett Ginn Mathematics Bk.1 pgs. 53, 79, 109 	<ul style="list-style-type: none"> • Create and solve addition problems in portfolios.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 1

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

Essential Questions

1. What is measurement?
2. How do we use measurement every day?
3. Why do we measure things?
4. Can everything be measured?
5. How did people measure things before there were rulers?
6. How would you know when to come to school if there were no clocks?
7. What are some non-standard units you could use to measure something?
8. How do we measure time?
9. How many minutes are in an hour?
10. How many hours are in a day?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 1**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Compare the lengths and heights of two objects by matching, using the words as long as, tall as, longer than, and shorter.	<ul style="list-style-type: none"> • To compare the length or height of objects, their ends must be aligned. • As long as: Means the objects are the same length and their ends start and stop at the same place. • As tall as: Having the same height. • Longer than: Having a greater length or distance. <p>Example: </p>	<ul style="list-style-type: none"> • Have students compare the lengths/ heights of objects. • Take students outside at different times of the day to observe their shadows. Put them to work in groups of threes to cut strings the same length as each their shadows. Discuss how shadows change during the day. 	<ul style="list-style-type: none"> • Harcourt Math, Bk.K. pg. 181 • Silver Burdett Ginn Mathematics Bk. K • Math Blaster Jr. ‘Grow Worms’ 	<ul style="list-style-type: none"> • Have students determine which of two objects are longer, shorter or the same length.
2. Compare the lengths/ heights of objects with non- standard units.	<ul style="list-style-type: none"> • Non- standard units are laid end to end along the length of an object. 	<ul style="list-style-type: none"> • Have students make cube trains or paperclip chains to measure their feet, the length of their arms from wrist to elbow, and the length of their legs from knee to ankle. Then have students work in groups to compare their trains or chains to see who has the largest foot, longest leg and so on. 	<ul style="list-style-type: none"> • Harcourt Math Bk. K. pg. 187 • Harcourt Math Bk. 1 pg. 329 	<ul style="list-style-type: none"> • Have students use non-standard units and compare the lengths and heights of objects.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 1**

Sub-Goal 4: Make and measurements of objects, quantities, and relationships and determine and acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Estimate the length of given objects using standard and non-standard units.	<ul style="list-style-type: none"> • Estimate: A rough calculation of the number of units to be used without measuring. • About is used in estimation as the measurement is not exact. 	<p>The Suspects</p> <ul style="list-style-type: none"> • Line up a group of “suspects” (stuffed animals, dolls, puppets). Using non standard and standard measurements have students guess who ate the candy. • Give a clue such as “The candy eater is about four snap cubes long.” Have students eliminate certain suspects based on the clue. and have them guess who ate the candy. 	<ul style="list-style-type: none"> • Harcourt Math Bk. K pg. 189 • Harcourt Math Bk. 1 pgs. 331, 333 • Silver Burdett Ginn Bk.1 pg. 287 • www.themathworksheet site .com 	<ul style="list-style-type: none"> • Guess and measure the lengths of object.
4. Measure the lengths and heights using standard units (metre, centimetre).	<ul style="list-style-type: none"> • Measurement involves comparison. • The metre and centimetre are standard units of measure. • The centimeter is smaller than the metre. • Also use customary unit of measurement (feet and inches) • When using the ruler, the left end of the ruler must be aligned with the left end of the object: 	<ul style="list-style-type: none"> • Have students’ measure parts of their bodies in centimeters and inches. • Have students measure various distance in the classroom and around the school in metres. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 1 pg. 333 	<ul style="list-style-type: none"> • Have students measure specified objects in either metre or centimetres or inches.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 1**

Sub-Goal 4: Make and measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT				
5. Compare the mass of two objects using terms such as heavy or light as; heavier as or lighter than; more or less than; and same as other objects.	<ul style="list-style-type: none"> • Heavier than: having more weight. • Lighter than: having less weight. 	<ul style="list-style-type: none"> • Brainstorm for objects that are light such as a cotton ball, balloon, flower, and bubble. Heavy objects such as a concrete block and a filled 5 gallon bottle of water. Go around the circle and have students complete the sentence” A cotton ball is as light as a _____.” Repeat with, A concrete block is as heavy as a _____” • Have students compare a variety of objects and have them tell which of two objects is heavier or lighter. 	<ul style="list-style-type: none"> • Harcourt Math Bk. K pg. 193 	<ul style="list-style-type: none"> • Have students tell which of two objects is lighter than or heavier than a given object. 				
6. Identify things that are hot/cold and justify responses	<ul style="list-style-type: none"> • Hot: having a high temperature. • Cold: having a low temperature. 	<ul style="list-style-type: none"> • Read stories to students and ask them if the temperature in the story is hot or cold depending on the clothes, the people are wearing. • Have students create a class bar graph or pictograph of their favorite hot /cold foods. 	<ul style="list-style-type: none"> • Silver Burdett Ginn Mathematics Level K 	<ul style="list-style-type: none"> • Students Sort appliances into two groups – hot and cold. e.g. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Hot</th> <th style="text-align: center;">Cold</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Stove microwave</td> <td style="text-align: center;">Refrigerator Air conditioner</td> </tr> </tbody> </table> 	Hot	Cold	Stove microwave	Refrigerator Air conditioner
Hot	Cold							
Stove microwave	Refrigerator Air conditioner							
7. Compare surface using common objects to determine equality of areas.	<ul style="list-style-type: none"> • Area is the amount of square units that can cover a figure. 	<ul style="list-style-type: none"> • Have students cover surface with similar shapes of the same size. For example, students’ measure to find out how many matchboxes will cover a desktop. • Have students trace their hands and cover the outline with beans. Have students compare the beans in the hand prints to find out which has more, less or equal. 	<ul style="list-style-type: none"> • Camelot Learning: Number and Number Sense • Tiles 	<ul style="list-style-type: none"> • Have students find areas of shapes by using tiles. 				

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 1**

Sub-Goal 4: Make and measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
8. Relate events to the appropriate time of the day in which they occur.	<ul style="list-style-type: none"> • Morning: The early part of the day. For example: When the sun rises. • Evening: When the sun sets. It is dark. • Mid-day: The middle of the day. 	<ul style="list-style-type: none"> • Have students act out something they do in the morning, afternoon, or at night. The rest of the group will guess the time of day. • Have students sing familiar day or night rhymes and songs such as: “Twinkle, twinkle little star!” 	<ul style="list-style-type: none"> • www.harcourtschool.com • Silver Burdett Ginn Mathematics Bk. K • Harcourt Math Bk. K pg. 203 	<ul style="list-style-type: none"> • Have students create a booklet of pictures showing day and night activities.
9. Make associations among months, days, and weeks on the calendar.	<ul style="list-style-type: none"> • Day: a period of time that is equal to 24 hours. • Week: a period of time that is equal to 7 days. • Month: a period of time that is equal to 28, 29, 30, or 31 days. 	<ul style="list-style-type: none"> • Have students make weekly charts by writing the days of the week on a sheet of construction paper. Then have them write or draw a picture under each day telling or showing what they did or plan to do for that week. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 1 pg. 267 	<ul style="list-style-type: none"> • Create graphic organizer showing relationship among days, weeks, and months of the year.
10. Name the months of the year in order.	<ul style="list-style-type: none"> • There are twelve months in a year. • January is the first month of the year. • December is the last month of the year. • The months of the year are January, February, March, April, May, June, July, August, September, October, November, and December. 	<ul style="list-style-type: none"> • Sing songs and rhymes that order the months of the year. • Make a set of cards with the months of the year. Let students work in pairs to arrange them in order 	<ul style="list-style-type: none"> • www.harcourtschool.com • Harcourt Math Bk.1 pg. 167 	<ul style="list-style-type: none"> • Recite the months of the year in the correct order.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 1**

Sub-Goal 4: Make and measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
11. Tell time to the hour and half-hour on a standard (analog) clock.	<ul style="list-style-type: none"> • Minute hand: the longer hand on an analog clock that indicates minutes. • Hour hand: the shorter hand on an analog clock that indicates the hour. • O'clock: of or according to the clock. • Minute: a unit of time that is equal to sixty seconds. • Hour: a unit of time equal to sixty minutes. • Half hour: a unit of time that is equal to thirty minutes. • To tell time on the hour, the minute hand is on 12, while the hour hand points to the hour. • For times to the half hour, the minute hand is on 6 and the hour hand is halfway between those hours. 	<ul style="list-style-type: none"> • Have students make clocks out of milk cartons, gift boxes, paper plates or construction paper. • Have students recite nursery rhymes that tell about time such as ‘Hickory Dickory Dock’, ‘Wee Willie Winkie, and ‘A Dillard, A Dollar’ 	<ul style="list-style-type: none"> • Silver Burdette Ginn Mathematics Bk. K pgs. 259, 261 • Harcourt Math Bk. K pgs. 209 & 210 • Harcourt Math Bk.1 pgs. 257-260 • www.mathslice.com • www.edhelper.com 	<ul style="list-style-type: none"> • Have student tell the times, on the hour or the half, that are on a standard clock.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 1**

Sub-Goal 4: Make and measurements of objects quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>12. Identify and count coins up to 25 cents in both Bahamian and US currencies.</p>	<ul style="list-style-type: none"> Bahamian coins  <p>Count 1¢ coins by ones Count 5¢ coins by fives Count 10¢ coins by tens</p>	<ul style="list-style-type: none"> Come to the Shop Set up a shop in the classroom of food containers, with price tags up to 25¢. Let a few volunteers act as storekeepers. Have other students purchase items. 	<ul style="list-style-type: none"> www.schoolhousetech.com Harcourt Math Bk. K pgs. 167-172 Silver Burdett Ginn Mathematics Levels K and 1 	<ul style="list-style-type: none"> Have students name both Bahamian and U.S. coins.
<p>13. Find the equivalent of other coins values in pennies.</p>	<ul style="list-style-type: none"> Five 1¢ or pennies are equivalent to 5¢ or a nickel.  <ul style="list-style-type: none"> Ten 1¢ or pennies are equivalent to 10¢ or a dime 	<ul style="list-style-type: none"> Have partners take turns rolling the amount of number cubes and taking those 1¢ coin/pennies. When a partner accumulates five 1¢ coins, he/she places the pennies in a paper cup bank and exchanges the 1¢ coins for a 5¢ coin. Children can exchange 1¢ coins for 5¢ coins only during their turn. After 5 rolls, each student counts to see who has more five cents. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 pg. 246 	<ul style="list-style-type: none"> Exchange the correct number of 1¢ coins for a 5¢, 10¢ or 25¢ coin.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 1**

Sub-Goal 4: Make and measurements of objectives, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
14. Identify money value through exchange.	<ul style="list-style-type: none"> • Exchange means to provide and receive goods of approximately equal value in return. • Skip count to determine the value of a group of coins. • Skip count by tens when counting 10¢. • Skip count by fives when counting 5¢ • Count 1¢ by ones 	<ul style="list-style-type: none"> • Obtain several seed packets and put a few seeds in a plastic sandwich bags. Attach price tags to the seeds bags. Let students purchase the seeds with 1¢, 5¢, 10¢ and 25¢ coins. Have students plant the seeds in plastic cups. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 1 pg. 244 • Silver Burdett Ginn Mathematics Bk.1 pgs. 205 & 207 	<ul style="list-style-type: none"> • Have students give the correct value of coins to purchase items from the class shop.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 1

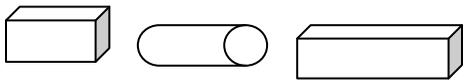
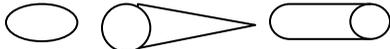
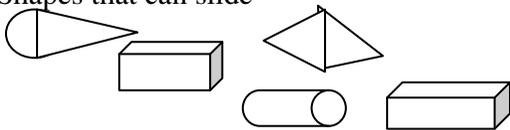
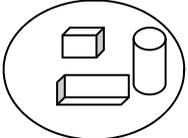
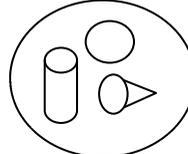
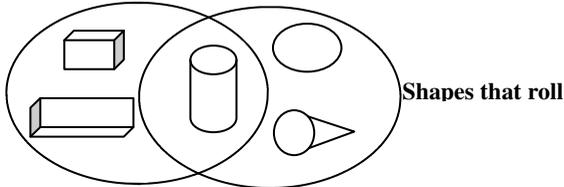
Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes and space.

Essential Questions

1. Where can geometric shapes be found in our surroundings?
2. What is the difference between a square and a triangle?
3. Why are attributes important in identifying geometric shapes and figures?

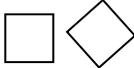
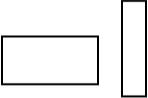
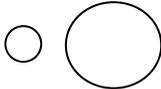
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 1**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Sort and classify shapes according to attributes with and without the use of a Venn diagram.</p>	<ul style="list-style-type: none"> • Classify: To categorize things in class. • Shapes that can stack  • Shapes that can roll  • Shapes that can slide  • Objects that stack and roll. E.g. Venn Diagram <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Shapes that stack</p>  </div> <div style="text-align: center;"> <p>Shapes that roll</p>  </div> </div> <div style="text-align: center; margin-top: 20px;"> <p>Shapes that stack</p>  </div> 	<p>Game: What am I?</p> <ol style="list-style-type: none"> Have students in small groups sort a collection of shapes. Give each group a solid shape. Have each group identify the attributes the shape has such as rolling, stacking and / or sliding. Have all groups hide their shapes. A group member calls out the attributes of the shape, and ask classmates to guess the shape. For examples: “It rolls, slides, and stacks. What am I?” A cylinder. 	<ul style="list-style-type: none"> • Harcourt Math Bk. K pg. 117A • Harcourt Math Bk. 1 pg. 289 	<ul style="list-style-type: none"> • Use sorting mats and plane shape cut- outs. Have students arrange the shapes into their correct columns.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 1**

Sub-Goal 5: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>2. Identify by naming, drawing and describing, triangles squares, rectangles and circles in different orientations (Continued).</p>	<ul style="list-style-type: none"> • Triangles have three sides and three corners.  • Squares have four sides that are all equal.  • Rectangle: Squares and rectangles have four sides and four corners.  • Circles are round and do not have sides and corners.  	<p>GUESS MY SHAPE</p> <ol style="list-style-type: none"> Gather and display flat shapes and pictures of several national flags. Ask students to identify the shape of each flag as well as the shapes on the flags.  <ul style="list-style-type: none"> • In small groups, have students use flat shapes to design their own flags. • Have students create riddles about shapes. For example, “I have no sides and no corner. What am I” (a circle). • Have students make collages using geometric shapes cut from construction paper. • Have each child create a rectangle book by cutting out pictures of rectangular shapes from old magazines and gluing them in the book. Repeat for other shapes. 	<ul style="list-style-type: none"> • Silver Burdett Gin Mathematics Bk.1 pgs. 135 &136 • Harcourt Math Bk. 1 pgs. 119, 295 	<ul style="list-style-type: none"> • Complete activity sheet matching shapes that are alike in different orientations.

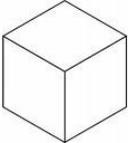
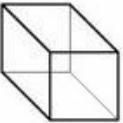
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE 1**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Identify by naming, drawing, and describing, triangles squares, rectangles and circles in different orientations.		<ul style="list-style-type: none"> • Go on a shape hunt throughout the classroom or playground. • Teacher demonstrates by holding a large triangle and asks, “Is this a triangle?” When all students agree, she turns it around and asks the question again. Continue with this exercise until students understand that orientation does not change the name of the shape. <ol style="list-style-type: none"> a. Hold up a triangle. b. Ask students to identify the shape. c. Turn shape in another direction and ask its name. d. Continue to change direction of shape so students understand that orientation does not change the name of the shape. e. Give students toothpicks and clay to form flat shapes. 		

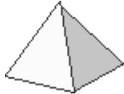
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE 1

Sub-Goal 5: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>3. Identify and describe basic solid shapes such as cones, cubes, rectangular prism, spheres, and cylinders</p>	<ul style="list-style-type: none"> A cube is a regular solid with six equal faces.  <p style="margin-left: 100px;">A cube</p> <ul style="list-style-type: none"> A rectangular prism is a three dimensional shape which has six faces that are rectangular.  <ul style="list-style-type: none"> A cone is solid (3 dimensional) shape that has a circular base and one vertex (a point where two or more straight lines meet; corner) 	<ul style="list-style-type: none"> Have students match the flat shapes with its name card. Have students use small boxes, styrofoam balls, cones, paper rolls, drinking straws, pipe cleaners, crayons and glue to make solid shape creatures. Have students create stories about their creatures. Have students create patterns with solid shapes. Play shapes in action. Distribute solid shapes to students and discuss their properties. Have students familiarize themselves with the solid shapes through song and dance. <p>Song: Dance Around to “London Bridge”</p> <p>Shapes, shapes, dance around, dance around, dance around. Shapes, shapes, dance around, now settle down. All cylinders dance around, dance around, dance around (repeat) Now settle down. (Use all shapes)</p>	<ul style="list-style-type: none"> Harcourt Math Bk. K pg. 115 Harcourt Math Bk.1 pg. 287 Silver Burdett Ginn Mathematics Bk. 1 pgs. 131 & 132 	<ul style="list-style-type: none"> Create a scrape book of shapes identifying and describing them.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 1**

Sub-Goal 5: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
	<div style="text-align: center;">  </div> <ul style="list-style-type: none"> A cylinder is a solid shape with two identical flat circular ends and one curved side. <div style="text-align: center;">  A cylinder </div> <ul style="list-style-type: none"> A pyramid is a solid shape where the sides are triangular which meet at the top and the base is a polygon. <div style="text-align: center;">  </div> <ul style="list-style-type: none"> A sphere is a solid bounded by a surface consisting of all points at a given distance from a point in its centre. E.g. globe, ball <div style="text-align: center;">  </div>	<ul style="list-style-type: none"> Nature walk: Take students into the environment and have them find and draw solid shapes Make models of solid shapes using clay and toothpicks. <p>“It is in a Bag: Have students work in small groups. Give each group a box with all of the solid shapes. Have students reach into the box, feel a shape, describe it, and match the shape with its name.</p>		

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 1

Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability.

Essential Questions

1. How does a graph give information without many words?
2. Why is it important to know when there is more, less, and equal to in situations?
3. In what real world contexts do we need to find probability?

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 1

Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Collect, record, and display information on concrete graphs and pictographs.	<ul style="list-style-type: none"> • All graphs should be titled • Pictograph is a way to represent, collect and display data. It is a kind of bar graph that uses pictures to represent the data collected. • Bar graph is another way to display data. It uses rectangular bars to show information. • Remember: The bars in a bar graph do not touch. 	<ul style="list-style-type: none"> • Have students conduct survey of their classmates to find their favorite pet. Children make a Bar graph of their findings and display it. • Use pictures of the modes of transportation by students to create a pictograph. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 1, pgs. 217-224 • Silver Burdett Ginn Mathematics Bk. 1 	<ul style="list-style-type: none"> • Have student complete concrete and pictographs.
2. Interpret information displayed in a graph using the vocabulary more, less, fewer, greater than and less than.	<ul style="list-style-type: none"> • Bar graphs amounts can be calculated by counting the shaded boxes or using the numbers along the bottom of the graph if it is horizontal. Amounts can easily be compared by lengths of the bars. • On pictographs, information can be quickly found and compared by looking at the pictures. • More/greater than: Having a greater quantity. • Less/fewer/less than: Having a smaller quantity and justify responses. 	<ul style="list-style-type: none"> • Have students draw his/her favorite toy. Have students sort/group the pictured toys by type. Have them label and title the graph. • Have students use the graph to answer the questions. For example, How many children like dolls? Do more children like cars or video games? 	<ul style="list-style-type: none"> • Harcourt Math Bk.1 pg. 219 • Silver Burdett Ginn Mathematics Bk.1 	<ul style="list-style-type: none"> • Have students use graphs to answer questions.
3. Draw conclusions and make predictions, about graphs.	<ul style="list-style-type: none"> • Drawing conclusions mean to use information you already know to figure out a problem. • Prediction is a claim that a particular event will occur in the future in more certain terms. 	<ul style="list-style-type: none"> • Have students make a Bar graph of their favorite ice-cream flavor and have them make predictions. Questions asked: a. Which ice-cream flavor was most popular? b. Which ice-cream flavor would the tuck shop sell most to our class, why? 	<ul style="list-style-type: none"> • Harcourt Math Bk. 1 pgs. 219 & 223 	<ul style="list-style-type: none"> • Demonstrate the use of logical reasoning when drawing conclusions or making predictions.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 1

Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Draw conclusions and make predictions, about graphs. (continued)		c. What flavor would the tuck shop sell least to students in our class?		
4. Investigate and describe the results of dropping a two coloured counter or using a multicoloured spinner (Concept of chance).	<ul style="list-style-type: none"> Chance is the likelihood of something happening; possibility or probability 	<ul style="list-style-type: none"> In groups, have students drop multicoloured spinner or counters. Ask questions related to probability such as: <ol style="list-style-type: none"> How many sections are blue? How many sections are red? How many sections are green? How many sections does the spinner have altogether? 	<ul style="list-style-type: none"> www.thefreedictionary.com 	<p>Discussion:</p> <ul style="list-style-type: none"> Students discuss results of spinning multicoloured spinner or dropping a two coloured counter.
5. Use and describe terms such as “likely” and “unlikely” to describe events/situations	<ul style="list-style-type: none"> Likely means that something will happen. E.g. I will go to grade two next year. Unlikely means that something will NOT happen. E.g. I will fly, flapping my arms 	<ul style="list-style-type: none"> Create situations with daily activities or stories and have students make predictions as to whether events are likely on unlikely to happen. Ensure that students use the math vocabulary “likely and unlikely” and justify responses. 	<ul style="list-style-type: none"> www.thefreedictionary.com 	<ul style="list-style-type: none"> Complete a worksheet indicating whether events/situations are likely or unlikely to happen.

Scope of Work

Primary School Mathematics

Grade 2

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE

GRADE: 2

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

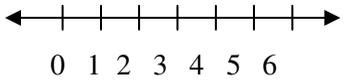
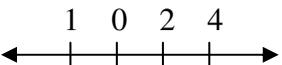
Essential Questions

1. Why are numbers important and how can you use them to solve problems?
2. How do we order two-digit numbers from greatest to least and from least to greatest?
3. How do numbers show parts of a whole or parts of a set?
4. How does the place of a digit in a number determine how much it is worth?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE**

GRADE: 2

Sub-Goal 1: : Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Read and write the numbers 0 to 20 on a number line.	<ul style="list-style-type: none"> Number Line A line that has equally spaced points named by numbers. e.g.  	<ul style="list-style-type: none"> Arrange number cards (0 to 20) on a number line in ascending order i.e. 0,1, 2, 3, ... 20 Have students identify numbers on the number line which matches their age, the number of cookies in their lunch box, the number of windows in the classroom, etc. Use velcro to attach numbers to the number line. Have some students close their eyes while you remove a number. Point out the secret number to the children whose eyes are opened. Have the children whose eyes were closed tell what number is missing. Do this for several numbers. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Vol. 1 pgs. 171A & 172A Math Jingles CD 	<ul style="list-style-type: none"> Fill in missing numbers to complete a number line. Identify points that are incorrectly labeled on the number line? Example: 
2. Read, write, recite and use number sequences to 999 (forward and backward).	<ul style="list-style-type: none"> Number Sequence: The order in which numbers are said, or placed when counting. Forward Counting in ascending order. e.g. 0, 1, 2, 3,...100 Backward Counting in a descending order e.g. 100, 99, 98... 	<ul style="list-style-type: none"> Call and write numbers to 999, using a hundred chart initially, then subsequently by memorization. Designate a number of the day by randomly selecting a number card from a box, and using the number in a variety of ways. e.g. locating it in text/workbooks. Arrange a series of numbers in designated order to demonstrate sequence. E.g. 741, 739, 743, 740, 742. -Forward – 139, 140, 141, 142, -Backward – 343, 342, 341, 340, 339. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Volume I pgs. 161A & 162A 	<ul style="list-style-type: none"> Complete a hundred chart by writing the missing numbers. Name numbers which come before, after, or between other numbers.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE**

GRADE: 2

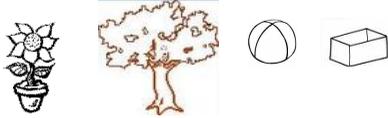
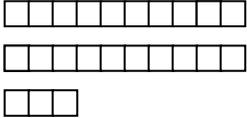
Sub-Goal 1: : Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Arrange numbers in ascending and descending order.	<ul style="list-style-type: none"> Numbers are said to be in ascending order when they are arranged from the smallest to the largest number. For example: 5, 9, 13, 17 and 21 are arranged in ascending order. Numbers are said to be in descending order when they are arranged from the largest to the smallest number. For example 25, 21, 17, 13 and 9 are arranged in descending order. 	<ul style="list-style-type: none"> Use number cards to tell where numbers come in relation to the position of other numbers. i.e. <ul style="list-style-type: none"> - before: in front of (<u>27</u>, 28) - after: following in place (632, <u>633</u>) - between: the number between two numbers (541, <u>542</u>, 543) Place numbers in ascending and descending orders. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Volume I pgs. 149A & 150A 	<ul style="list-style-type: none">
4. Identify the positions first through twentieth using an ordered set of objects (Continued).	<ul style="list-style-type: none"> Ordinal Numbers - Numbers which describe the position of objects as they are related to others in an ordered group. Examples <ul style="list-style-type: none"> - 1 = first 1st - 2 = second 2nd - 3 = third 3rd - 4 = fourth 4th - 20 = twentieth 20th 	<ul style="list-style-type: none"> Identify objects on a line and use ordinal numbers to identify the positions. E.g. This butterfly is fourth on the line  Match ordinal number words to their symbolic representatives. E.g. seventh – 7th 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Volume 1 pgs. 159A & 160A 	<ul style="list-style-type: none"> Color to show the order of objects. Example: Color the second object blue.  Use ordinal numbers to describe the positions of objects. Example: Where is the hat?  <p>The hat is second.</p>

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE**

GRADE: 2

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>4. Identify the positions first through twentieth using an ordered set of objects.</p>		<ul style="list-style-type: none"> Identify an object that comes first, and use it as a benchmark in locating other objects. e.g.  Take students to the playground. Have them run races in groups. Have them tell who came first, second, third, etc. Designate students to pin different colour ribbons on students according to the position they came in the race (i.e. first – red ribbon, second, green ribbon, etc.). 		<ul style="list-style-type: none"> Identify the first person/object on a line when they are turned indifferent directions. i.e. facing – left, right, top, or bottom.
<p>5. Describe a two-digit number in terms of tens and ones.</p>	<ul style="list-style-type: none"> Two-digit number: A number that is made up of two digits e.g. 27. The place value of digits is read from right to left. The first digit to the right is in the ones place. The second digit to the left is in the tens place. 	<ul style="list-style-type: none"> Model tens and ones for given numbers, using base-ten blocks or cubes. e.g. 23  Identify/name digits that represent tens and/or ones in numbers. e.g. 64 $6 = 6 \text{ tens}$ $4 = 4 \text{ ones}$ 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Teacher's Edition pgs.126 – 138A Math Jingle CD 	<ul style="list-style-type: none"> Tell/write numbers that represent a set number of tens and ones e.g. this number is 4 tens and 5 ones. What is it? 45 Identify numbers which are either in the tens or ones place e.g. 38. <u>3</u> is in the tens place.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE**

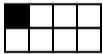
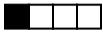
GRADE: 2

Sub-Goal 1: : Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT			
6. Identify the place value of each of a 3-digit number.	<ul style="list-style-type: none"> Place Value of 3-digit numbers: The position of the digit determines its value in a number. For example 256 <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 5px;">Hundreds 2</td> <td style="padding: 5px;">Tens 4</td> <td style="padding: 5px;">Ones 6</td> </tr> </table> <ul style="list-style-type: none"> The digit 2 is in the hundreds place. The value of the 2 is 2 hundreds. 	Hundreds 2	Tens 4	Ones 6	<ul style="list-style-type: none"> Read/write Three – digit numbers e.g. 840 Identify numbers with specific place values e.g. 431 Which number is in the hundreds place? 4 <ul style="list-style-type: none"> a. the tens place? 3 b. the ones place? 1 	<ul style="list-style-type: none"> Harcourt Math Bk. 2 Vol.2 pgs. 313A-316A Zoo Zillions Annie’s Jingle Trail 	<ul style="list-style-type: none"> Write the place and the value of digits. For example Value $\underline{24} = 20$ or 2 tens. <u>place</u> – Tens
Hundreds 2	Tens 4	Ones 6					
7. Compare whole numbers between 0-999 using the symbols <, >, = (Continued).	<ul style="list-style-type: none"> Greater Than ($\textcircled{>}$): A number that is more than in quantity or amount. e.g. $126 > 124$ Less than ($\textcircled{<}$): A number that is less than or fewer in quantity or amount. E.g. $412 < 528$ Equal to ($\textcircled{=}$): Numbers that are the same in quantity or amount. e.g. $52 = 52$ 	<ul style="list-style-type: none"> Select the number which is greater or less, in a given pair. e.g. greater 314 <u>412</u> less <u>296</u> 298 Write/give numbers which are greater or less than, or equal to given numbers. e.g. 145 <ul style="list-style-type: none"> - greater 216, 728 - less 100, 109 - equal 145 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Vol. 1 pgs. 143A-154A 	<ul style="list-style-type: none"> Demonstrate ability in reading numbers between 0-999, then comparing them as it relates to their amounts using symbols. Identify and distinguish which numbers are greater, less than, or equal to other numbers. Circle the larger, largest or smaller, smallest number. Students complete an on line assessment at www.harcourtschool.com 			

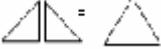
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 2

Sub-Goal 1 : Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
7. Compare whole numbers between 0-999 using the symbols $, >$, and $=$.		<ul style="list-style-type: none"> Use math symbol cards to compare number pairs. e.g. $714 > 322$ 714 is greater than 322 $811 < 951$ 811 is less than 951 $203 = 203$ 203 is equal to 203 and understand the relationship of the numbers to each other. 		
8. Identify odd and even numbers.	<ul style="list-style-type: none"> Even Number: A number which represents an amount of objects that can be grouped into pairs with none left over. E.g. 2, 4, 6, 8 Odd Number: A number that represents an amount of objects that when grouped into pairs one is left over. E.g. 1, 3, 5, 9 	<ul style="list-style-type: none"> Using connecting cubes, make groups of two for given numbers and observe if one block is left over to distinguish the numbers as either even or odd. e.g. $20 = 0000000000$ 0000000000 20 is even $13 = 000000$ 000000 13 is odd Use hundreds board (chest) to shade odd and even numbers and let students discover the pattern. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Vol.1: Teacher's Edition pg. 165A Mathematics in Motion: A Resource Book for Primary Teachers, pgs. 42, 44 	<ul style="list-style-type: none"> Demonstrate or explain steps to find out whether a number is even or odd. Show if a number is even or odd by using varied objects. Journal writing: Odd and even numbers Write odd or even numbers next to given numbers. E.g. 25 <u>odd</u>
9. Read, write, and shade in examples of $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{8}$ and $\frac{1}{10}$, $\frac{1}{12}$ as part of a whole (Continued).	<ul style="list-style-type: none"> Identify the symbolic representations of fractional parts a. $\frac{1}{2}$: One out of two equal parts – half b. $\frac{1}{3}$: One out of three equal parts– third c. $\frac{1}{4}$: One out of four equal parts– fourth 	<ul style="list-style-type: none"> Divide plane shapes into equal parts then color one part to represent the fraction. Example: $\frac{1}{8}$ one eighth  Shade in parts to represent a fraction Example $\frac{1}{4}$ one fourth  	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Vol.2 Teacher's Edition: pgs. 353A, 354, 355, 357 	<ul style="list-style-type: none"> Label fractional parts of figures using symbols.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 2**

Sub-Goal 1: : Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
9. Read, write, and shade in examples of $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{8}$ and $\frac{1}{10}$, $\frac{1}{12}$ as part of a whole.	d. $\frac{1}{8}$: One out of eight equal parts– eight e. $\frac{1}{10}$: One out of ten equal parts– tenth f. In each instance, the bottom number represents the total number of pieces to make a whole. The top number represents only one part of the whole.	<ul style="list-style-type: none"> Write a fraction to describe figures. Example: $\frac{1}{2}$  Fold sheets of paper to make equal parts. Example: $\frac{1}{3}$  		<ul style="list-style-type: none"> Shade figure(s) for given fraction(s) Example: $\frac{1}{2}$ 
10. Explain that fractional parts of a whole are equally sized pieces.	Fractional Parts <ul style="list-style-type: none"> A number of equally sized pieces or parts that when put together make one whole or a complete group. <ol style="list-style-type: none"> one half $\frac{1}{2}$ - one out of two equal parts one third $\frac{1}{3}$ - one out of three equal parts one fourth $\frac{1}{4}$ - one out of four equal parts 	<ul style="list-style-type: none"> Identify objects that have fair shares, or equally sized pieces. Cut play dough ‘pizza’ into fair shares or equal parts to divide among other group members. Example: 4 members in a group, each member will be given one out of the four equal parts. Find the missing fractional part to complete an object or shape. e.g.    Describe fractional parts of groups. Example  <p>$\frac{1}{3}$ of the marbles is black.</p>	<ul style="list-style-type: none"> Harcourt Math Bk. 1Vol. 2: Teacher’s Edition pgs.352 & 359A Mathematics Plus Bk. 1 Teacher’s Edition pg. 291& 292 	<ul style="list-style-type: none"> Divide objects into equal parts for fractions. Paste pre-cut fractional parts to make a whole 

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE: 2

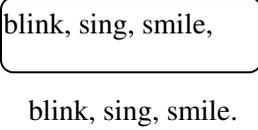
Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

Essential Questions

1. What is the role of patterns in everyday life?
2. Why is skip counting important in everyday life?
3. How do I find missing values in a number sentence?
4. Why is knowing how to count important?

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE: 2

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Identify, continue, and create pictorial, action and repeated/grouping patterns within 999 (Continued).</p>	<ul style="list-style-type: none"> Pattern: A repeated sequence or design E.g.  5, 10, 15, 20, 25, 30... Pattern Unit: Part of a pattern that repeats. E.g.  Pictorial Pattern: A pattern made using pictures E.g.  Action Pattern: Made by performing a specific set of actions. E.g. clap, jump, dance, clap, jump, dance, clap, jump, dance 	<ul style="list-style-type: none"> Identify and continue the pattern in a row of pictures then draw or tell what should come next. E.g.  Identify the pattern unit in a given pattern. E.g.  E.g.  Demonstrate/tell which action should be next in an action pattern. E.g. raise arms up, put arms down, raise arms up, put arms down. Use pictures in a pattern to make a new pattern. E.g.  	<ul style="list-style-type: none"> Harcourt Math Bk. 1 pgs. 313-324 Connecting Cubes Harcourt Math Bk. 1-Vol. 2- Teacher's Edition pgs. 317A - 318,319 Harcourt Math Bk. 1-Vol 2- Teacher's Edition pgs. 319A & 320 	<ul style="list-style-type: none"> Correctly draw or tell what should come next to continue a given pattern. Use numbers and symbols Create a pattern using a given set of pictures, or actions Create new patterns using the same objects, shapes, or numbers given.

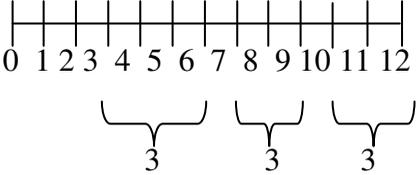
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE: 2

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Identify, continue, and create pictorial, action and repeated/ grouping patterns within 999	<ul style="list-style-type: none"> Number Pattern that repeats or grows: A pattern that is created is based upon the relationship of its numbers. E.g. 1, 3, 5, 7, 9, 11, ___ To create this pattern the number 2 is always added to the previous number to get the next one. The next number is 13. 	<ul style="list-style-type: none"> Tell which number should come next in a pattern. E.g. 2, 4, 4, 2, 4, 4, 2, 4, 4, or 10, 20, 30, 40, 50... Compose numerical patterns. Example 1 2 3 4 1 2 3 4 	<ul style="list-style-type: none"> aaamath.com 	<ul style="list-style-type: none"> Correctly tell what comes next in the number pattern.
2. Identify patterns in their world.	<ul style="list-style-type: none"> Recognize that there are patterns all-around us and be able to identify different kinds. 	<ul style="list-style-type: none"> Observe things which have a variety of designs on them, that create patterns, (e.g. animal skins (stripes, spots), clothing (stripes, polka dots, plaids) tiles, windows, etc) then discuss observation. Participate in a nature walk Observe and discuss the types of patterns seen. _____ lines or leaves _____ lines on tree trunks _____ petals on flowers _____ branches etc. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 pgs. 313-324 	<ul style="list-style-type: none"> Name types of patterns (designs) as seen in pictures or on items. Create own patterns.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE: 2

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Skip count by 2s, 3s, 5s, 10s, 25s, 50s up to 999.	<ul style="list-style-type: none"> Count forwards or backwards by a number other than one. Use number patterns to count by 2s, 3s, 5s, 10s, 25s, 50s. 	<ul style="list-style-type: none"> Count using a 100 counting chart. Use 40 counters and arrange them in groups of 2s, 5s, 10's, and 50s. 	<ul style="list-style-type: none"> Cuisenaire rods. Harcourt Math Bk. 1 pgs. 163-167 	<ul style="list-style-type: none"> Have students explain why skip counting is necessary in everyday life.
4. Identify and locate missing numbers on a number line.	<p>E.g. Skip count by 3s: 3, 6, 9</p> 	<ul style="list-style-type: none"> In cooperative groups, students explain, complete, and share how they arrived at answers on the number line. Groups are not assigned the same problems. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 pgs. 149 & 150 	<ul style="list-style-type: none"> Provide students with an activity sheet where they have to identify the missing numbers on a number line.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE: 2

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
5. Estimate the amount of objects in a set using 0, 10 and 100 and then determine if the estimation was reasonable.	<ul style="list-style-type: none"> • To estimate is to find a number that is close to the exact answer. 	<ul style="list-style-type: none"> • How Many? <ol style="list-style-type: none"> a. Fill a jar with beans or other objects and have students estimate how many beans are in the jar. b. Have students fill in given containers to verify their answers. • In the classroom spread several things on the floor (e.g. books, toys, pencils, etc.). Have students estimate the number of items on the floor (1, 100 or 1000). Then have them count as they pick up the items. 	<ul style="list-style-type: none"> • www.icoachmath.com • Jar • Manipulatives (Beans, macaroni) 	<ul style="list-style-type: none"> • Explain why estimation is important.
6. Solve non-routine problems where finding pattern is an appropriate strategy.	<ul style="list-style-type: none"> • Non-routine problems stress the use of heuristics and require little or no use of algorithms. • Heuristics are procedures/strategies that do not guarantee a solution to a problem but provide a more highly probable method for discovering the answer. For example, draw a picture 	<ul style="list-style-type: none"> • Students solve problems where using a pattern is a strategy. 	<ul style="list-style-type: none"> • http://www.mathpentath.org 	<ul style="list-style-type: none"> • Use the KWL strategy

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 2

Sub-Goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

Essential Questions

1. How can you use addition and subtraction to solve problems?
2. What strategies do I use to find the sum or difference of two whole numbers up to two digits?
3. What are fact families and how do they help us add and subtract?
4. How will understanding the relationship between addition and subtraction help me solve my problems and check my work?
5. How would estimation help in finding sums and differences?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 2**

Sub-Goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Recall addition and subtraction facts up to twenty ($10 + 10 = 20$)</p>	<ul style="list-style-type: none"> • Addition Facts: The addition of two single-digit addends producing sums to 18. For example: $7 + 9 = 16$s Addend: a number to be added to another. • When zero is added to a second number, the answer is the second number. For example, $0 + 20 = 20$. • Adding one is just like counting by one. • Subtraction facts are facts you should know just by thinking, not counting. Once you know these facts, you can subtract any number easily. • Show the relationship between the addition and subtractions facts. • For example: $15 - 8 = 7$. Ask students to think about what goes with 8 to make 15. The students use a known addition fact $8 + 7 = 15$ to solve the subtraction fact. 	<ul style="list-style-type: none"> • Use flash cards and allow students to identify addition facts in less than 3 seconds. This indicates mastery of the fact. i. Place these cards in the “I know” stack. Review with students the facts that are easily retrieved. The cards that are left become the “I want to know” stack. As cards from this stack are learned they become the “I learned” stack. ii. Make labels for the stack so the student can see a visual model of “K-W-L” chart of his subtraction facts. • Perform the above for subtraction facts. 	<ul style="list-style-type: none"> • enVision Math Bk. 1 pgs. 481 & 515 Harcourt Math Bk. 1 Vol.2 pgs. 373A-384A <ul style="list-style-type: none"> a. Reteach, Practice, Problem Solving Challenge Worksheets and Transparency pgs. 26.1-26.6 • Flash cards • Number line 	<ul style="list-style-type: none"> • Worksheet on addition and subtract facts. Time students and record their scores. The objective is for all students to gain mastery on the facts. This activity may take several attempts.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 2**

Sub-Goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Apply basic facts to mental math (Continued).	<ul style="list-style-type: none"> • Mental math strategies for subtraction facts should be developed separately. Doing addition and subtraction concurrently is not pedagogically wise. • Strategies for Mental math <ul style="list-style-type: none"> i. Doubles: E.g., for $4 + 6$, think $5 + 5$ ii. Doubles Plus One: E.g., for $4 + 5$, think $4 + 4 + 1$ iii. Doubles Take Away One: E.g., for $4 + 5$, think $5 + 5 - 1$ iv. Doubles Plus Two: E.g., for $4 + 6$, think $4 + 4 + 2$ v. Doubles Take Away Two: E.g., for $4 + 6$, think $6 + 6 - 2$ vi. Making 10: E.g., for $7 + 5$, think $7 + 3 + 2$ vii. Building on a Known Double: E.g., $6 + 6 = 12$, so $6 + 7 = 12 + 1 = 13$ 	<ul style="list-style-type: none"> • Perform mental math drills <p>Example:</p> <ol style="list-style-type: none"> 1.) $2+8 =$ 2.) $7+1 =$ 3.) $9-3 =$ 	<ul style="list-style-type: none"> • www.eduplace.com/math/mw/models/overview/1_21_2.html - 7k – • Harcourt Math Bk.1 Vol.2 pgs. 258A, 378A, 416A, 430A <ul style="list-style-type: none"> a. Mental Math (Teacher’s Edition) pgs. 246, 258, 378 	<ul style="list-style-type: none"> • Written or oral quiz

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 2

Sub-Goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Apply basic facts to mental math .	viii. Addition to Subtraction: e.g., for $7 - 3$, think $3 + ? = 7$.			
3. Explain strategies used to arrive at sums and differences.	<p>Strategies</p> <ul style="list-style-type: none"> • Adding 10 to a number: Adding 10 to a number does not require any counting. For example, $10 + 2 =$ $8 + 10 =$ $10 + 5 =$ $7 + 10 =$ $10 + 9 =$ $3 + 10 =$ • Think Addition Strategy: This strategy demonstrates how students can use their knowledge of adding facts to find the answers to subtraction equations. For example For 10-6, students should look at the number and think “6 plus what equals 10?” and determine the missing addend. <p>The Count Back Strategy: If students have to subtract 1, 2, or even 3 from a number, they could employ a counting back strategy with or without visualizing jumping back on a number line.</p>	<ul style="list-style-type: none"> • Use file folder games where students match the sums to the equations. • Provide one group of students with addition and subtraction problems. Write them on greeting card size construction paper and hang them around the students’ neck. Give another group the answers to the addition and subtraction facts. Write them on greeting card size construction paper and hang them around their necks. After giving a signal have students ‘find their partners’. 	<ul style="list-style-type: none"> • www.mhschool.com • www.gkastner.com • aaamath.com • www.isbe.net • Harcourt Math Bk. 1 Vol.1 pgs. 65A-74A a. Reteach, Practice Problems Solving Challenge Worksheets and Transparency 5.1-5.5 b. Problem Solving Think Along, pg. 24 	<ul style="list-style-type: none"> • Teacher flashes subtraction and addition fact cards to students. All fact cards should be random addition and subtraction of 1, 2, and 3 (adding 10 to a number, think addition, count back) ii. Students look at cards and verbally count back, add 10, or think addition to determine the solution. iii. Evaluate students’ answers to determine whether they used the correct strategy. iv. Evaluate students’ answers to the sum and differences and keep track of right and wrong answers by sorting them as you flash.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 2**

Sub-Goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
4. Create and explain fact families using addition and subtraction skills to show the relationship between addition and subtraction.	<ul style="list-style-type: none"> Fact families: A fact family is a group of related facts using the same numbers. Example $4 + 3 = 7$ $7 - 3 = 4,$ $3 + 4 = 7$ $7 - 4 = 3.$ Fact families are a very powerful tool for mastering facts; once you know one fact in a family, you can work out the other facts in the same family. Fact families are also useful for solving problems with missing addends, such as $4 + \underline{\quad} = 7$ 	<p>Make a Triangle:</p> <ul style="list-style-type: none"> On the points of the triangle write the digits in the fact family: For example:2,3, 5. On the triangle, have the child write the 2 addition and 2 subtraction facts for that family. You could duplicate many triangles, with lines for the facts. Then you can "customize" each triangle! 	<ul style="list-style-type: none"> enVision Math Bk. 3 pg. 66 Bright Sparks Bk 2. p. 31 Harcourt Math Bk. 1Vol.1 pgs. 79A-88A, 97A & 98A <ul style="list-style-type: none"> a. Reteach, Practice, Problem Solving Challenge Worksheets pgs. 105A-116A b. Transparency 7.3 	<ul style="list-style-type: none"> Students search for related addition and subtraction facts for a given number and investigate fact families when one addend or the difference is 0
5. Find the sums of 2 two-digit numbers using a variety of methods (Continued).	<ul style="list-style-type: none"> Addition of two-digit numbers is developed sequentially, beginning by finding the sums of numbers that are multiples of 10. For example, to add 40 plus 50, a child may think of the basic addition fact, $4 + 5 = 9$, and then affix a zero to the five to get the sum, 90. When children do this, the important point to emphasize is that they are not really adding 4 and 5, but rather 4 tens and 5 tens. 	<p>Hundred Board Sums</p> <ul style="list-style-type: none"> In cooperative group, students cut numbers from the hundred board to create addition problems. Students then find the sums of the problems. 	<ul style="list-style-type: none"> www.eduplace.com eliot.needham.k12.ma.us Harcourt Math Bk. 1 pgs. 413A & 414A, 417A & 418A, 421A & 422A <ul style="list-style-type: none"> a. Reteach, Practice, Problem Solving Challenge Worksheets and Transparency, 29.1, 29.3, 29.4, 29.5 	<ul style="list-style-type: none"> Use interactive assessment, which is found at In the Rainforest Math, students are challenged to add starting from the ones place and then the tens place. Teachers can check students' scores at the top of the web page.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 2

Sub-Goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
5. Find the sums of 2 two-digit numbers using a variety of methods.	<ul style="list-style-type: none"> Addition algorithm is based on the base-ten positional numeration system, and so when adding two-digit numbers, place value must be acknowledged. For example of $34 + 52$. The first digit from the left is in the tens place, and the second digit from the left is in the ones place. $34 + 52$ can be written in the following way: $\begin{array}{r} 34 \quad 30 \quad + \quad 4 \\ + 52 \quad + 50 \quad + \quad 2 \\ \hline 86 \quad 80 \quad + \quad 6 = 86 \end{array}$ Adding 34 and 52 is equivalent to finding the sum of 3 tens (30) and 5 tens (50), and then adding to this result the sum of 4 ones and 2 ones. 	<ul style="list-style-type: none"> Students will be given copies of the local newspaper. In pairs they will locate ads and create problems (using two-digit numbers) for their classmates to solve. 		

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 2**

Sub-Goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
6. Find the difference of 2 two digit numbers.	<ul style="list-style-type: none"> • Subtract the ones place first. • Subtract the tens. Example: $\begin{array}{r} 56 \\ -23 \\ \hline 33 \end{array}$ 	<p>Subtraction Train</p> <ul style="list-style-type: none"> • In groups, subtraction problems are placed on a train. If group members calculate the correct answer, they say “Cho, Cho”. 	<ul style="list-style-type: none"> • Bright Sparks Bk 2. p. 56 • Harcourt Math Bk. 1 pgs. 435-440 a. Reteach, Practice, Problem Solving Challenge Worksheet and Transparency 30.1, 30.3 • www.aaamath.com • Place Value Modules 	<ul style="list-style-type: none"> • Use interactive assessment, which is found at www.aaamath.com. Students are challenged to subtract problems. Teachers can check students’ scores and times of completion at the bottom of the web page.
7. Estimate the amount of objects in a set using 0, 10, and 100 as benchmarks and then determine if estimation was reasonable (Continued).	<ul style="list-style-type: none"> • Use the number line to help with estimation. • Select a number. For example, 43. 43 is closer to 40 than 50. 	<ul style="list-style-type: none"> • Guess Imation Time a. Activity can be done individually, in peers or in groups. b. Teacher gives a list of questions, which would require students to estimate then find the real answer. c. Students compare their answers with their guesstimate and find the differences. 	<ul style="list-style-type: none"> • enVision Math Bk. 2 pgs 347-348 • Harcourt Math Bk. 2 pg. 215 • Math Jingle CD: Primary Problem Solving Think Along TR 124 	<ul style="list-style-type: none"> • Students use number line to estimate numbers or objects in a set.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 2

Sub-Goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
7. Estimate the amount of objects in a set using 0, 10, and 100 as benchmarks and then determine if estimation was reasonable.		<ul style="list-style-type: none"> • Questions for investigating can include the following: <ol style="list-style-type: none"> a. How many cars are in the school's parking lot? b. How many doors are in the school? 		
8. Estimate to find sums and differences (Continued).	<ul style="list-style-type: none"> • Use the number line to assist students with estimation. • Given a number, find the two numbers that come before and after (counting in tens) that number. E.g. The number is 34. Between which two numbers (counting in tens) does this number fall. Answer: 30 and 40. 34 is closest to which number, 30 or 40? It is closer to 30. Then, 34 is estimated to 30. • Add the numbers. Example: $\begin{array}{r} 45 \quad 50 \\ + 72 \quad +70 \\ \hline 120 \end{array}$ <ol style="list-style-type: none"> a. 45 is between the numbers 40 and 50. 45 is closer to 50. Therefore, 45 is estimated to 50. 	<ul style="list-style-type: none"> • Use flash card and allow student to estimate sums and differences using a variety of methods. • Estimation Hangman <ol style="list-style-type: none"> a. Students estimate sums and differences to the nearest ten. If the addends or minuends are incorrect, you draw the parts of the hangman. The group or student who completes the hangman first loses the game. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 1 pgs. 137A & 138A <ol style="list-style-type: none"> a. Reteach, Practice, Reading Strategy, Challenge Worksheets and Transparency 9.6 • Math Jingles CD, Primary Problems Solving Thinking Along TR 124 	<ul style="list-style-type: none"> • Students create and solve problem estimating sums and differences.

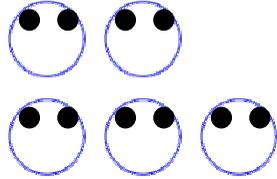
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 2

Sub-Goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
8. Estimate to find sums and differences.	b. 72 is between the numbers 70 and 80. 72 is closer to 70. Therefore, 72 is estimated to 70. The estimated sum is 120 For subtraction, the rule remains the same. After estimation, you subtract instead of add.			
9. Explore multiplication as repeated addition.	<ul style="list-style-type: none"> Multiplication is a fast way of adding a series of numbers. Example: 1 bird has 2 legs 5 birds have $2 + 2 + 2 + 2 + 2 = 10$ Add 2 (5 times)	<ul style="list-style-type: none"> In groups using manipulatives, students explore multiplication as repeated addition. Example: Solving Problems around the School Using Repeated Addition Take students on a tour around the school. Have them solve problems like counting the number of desks and chairs in a classroom, computers in the computer lab, number of juice in a box sold by the lunch vendor, etc. Explain to them that if the desks and chairs are set up in rows and columns it is easier to multiply to find the total number, instead of counting each item separately.	<ul style="list-style-type: none"> www.multiplication.com Harcourt Math Bk. 2. Vol.2 pg. 28 Carnival Countdown CD 	<ul style="list-style-type: none"> Students match prepared repeated addition sentences with multiplication sentences. They walk around to find a partner with coordinating product.
10. Explore division as repeated subtraction (Continued). Note: Objectives 8 and 9 are introductory. Students do not learn multiplication and division facts at this time	<ul style="list-style-type: none"> Remember that multiplication is repeated addition. $5 \times 4 = 4 + 4 + 4 + 4 + 4 = 20.$ <ul style="list-style-type: none"> Division is repeated subtraction. 	<ul style="list-style-type: none"> In groups using manipulatives, students explore division as repeated subtraction. Example: 10 legs - How many birds?	<ul style="list-style-type: none"> www.homeschoolmath.net Manipulatives Harcourt Math Bk. 2 Vol.2 pgs. 441A-442A 	<ul style="list-style-type: none"> Students create and solve problems with division as repeated subtraction.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 2**

Sub-Goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>10. Explore division as repeated subtraction.</p> <p>Note: Objectives 8 and 9 are introductory. Students do not learn multiplication and division facts at this time.</p>	<p>Example: 20 peanut cakes. Make a group of 4. Form another group of 4 until none is left. How many groups do you make?</p>	<p>10 - 2 = 8 8 - 2 = 6 6 - 2 = 4 4 - 2 = 2 2 - 2 = 0</p>  <p>= 5 birds</p>		
<p>11. Create and solve problems in addition and subtraction using whole numbers, money, and fractions.</p>	<ul style="list-style-type: none"> The words “in all” and “altogether” are associated with addition. The words “left” and “many more” than are associated with subtraction. 	<ul style="list-style-type: none"> In groups, students solve various problems and justify their answers. <ol style="list-style-type: none"> Using the Miami Herald or the local newspaper, collect food store advertisements for items (milk, bread, etc.). Create various problems for the students to solve where they are given a certain amount of money to purchase some lunch for school. <p>Example: Rachael was given \$5.00 to purchase some food for her lunch. She went to Super Value and brought 2 apples at 50 cents each, 1 potato chip at 75 cents and an apple juice at 85 cents. How much money did she spend? How much change does she have left?</p> 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 pgs. 7A-248A <ol style="list-style-type: none"> Problem Solving Think Along TR 124 Reteach, Practice, Problem Solving Challenge Sheet pgs. 359A &360A 	<ul style="list-style-type: none"> Students complete activity sheets where they solve problems in addition and subtraction using whole numbers, money, and fractions.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 2

Sub-Goals 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

Essential Questions

1. What are the three basic units of measurements?
2. How does what you measure influence how you measure?
3. How does experience help you relate time to when an event actually happen?
4. What information is necessary to solve everyday problems?

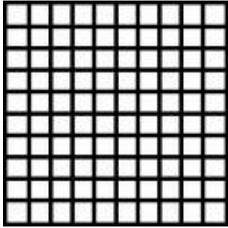
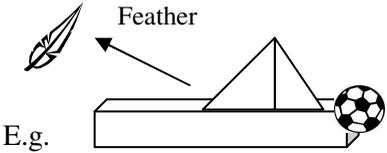
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 2**

Sub-Goals 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Estimate and measure objects to the nearest metre, centimetre, or decimetre.	<ul style="list-style-type: none"> To give an estimation is to guess as closely as possible the approximate lengths of objects, and then check the accuracy of that guess by using a ruler for a specific unit of measurement. Metre - basic unit of measuring length in the metric system. Centimetre – 1/100 of a metre or 100 centimetre = 1 metre Decimetre- 1/10 of a metre or 10 decimetre = 1 metre. 	<ul style="list-style-type: none"> Give each child/group an object and allow them to make reasonable estimates as to the length of each object based on the unit being used. Have them measure it, and write the length as closely as possible to its actual measurement e.g. which string is about 3cm? (check estimates by measuring) How many centimetres long is the eraser?  (other objects that could be books, desk, chalkboard, window sill, paper clips, etc) Tell which object in a group could be a certain length. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Teacher's Edition pgs. 333A & 334A Harcourt Math Bk. 2 Vol. 2 pgs. 257A-280A <ol style="list-style-type: none"> Problem Solving Think Along TR124 Various objects 	<ul style="list-style-type: none"> Give reasonable guesses then measure and tell accurate lengths of a specific object. Choose objects of given lengths by making reasonable guesses.
2. Demonstrate the concept of area using nonstandard units (Continued).	<ul style="list-style-type: none"> Area is the surface to be covered. The area is measured in squared units. Show how to find the amount of spaces an object covers by counting the number of square blocks on grid paper. 	<ul style="list-style-type: none"> Use grid paper to draw/outlines figures that have a given number of square units. Then shade in the area, e.g. 5 units.  	<ul style="list-style-type: none"> grids 	<ul style="list-style-type: none"> Write the area of objects using square units (by counting squares). Correctly draw any figure for a given area and shade it in.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 2**

Sub-Goals 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT						
<p>2. Demonstrate the concept of area using nonstandard units.</p>	<ul style="list-style-type: none"> Count the number of squares inside a specifically outlined area to find its area in square units.  <p>e.g. This area is 11 square units.</p>	<ul style="list-style-type: none"> Draw figures for given areas and shade them in. 								
<p>3. Compare masses of objects using metric measurements (Continued).</p>	<ul style="list-style-type: none"> Mass measures by how much something weighs. Weight can change depending on where you are (such as on the moon) while the mass stays the same. In the metric system, kilograms and grams are measures of mass, but in the U.S. customary system, ounces and pounds are measures of weight Heavier means having more weight than another object. On a balance scale, the heavier object will lower the pan. Light means having less weight than another object. 	<ul style="list-style-type: none"> Place an object on either side of a balance in the pans, then observe to see which is heavier (lower pan) or lighter (higher pan)  <p>E.g. Feather Ball</p> <p>Draw objects on a sheet of paper under the headings.</p> <p>‘Heavier or lighter’ i.e.</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 50%;">Heavier</td> <td style="width: 10%; border-left: 1px solid black;"></td> <td style="text-align: center; width: 40%;">Lighter</td> </tr> <tr> <td style="text-align: center;">  (ball) </td> <td></td> <td style="text-align: center;">  (feather) </td> </tr> </table>	Heavier		Lighter	 (ball)		 (feather)	<ul style="list-style-type: none"> Harcourt Math Bk. 1, Teacher’s Edition Vol. 2 pgs. 314A & 342A balance scale www.mathsisfun.com 	<ul style="list-style-type: none"> Circle objects that are heavier or lighter and justify the responses.
Heavier		Lighter								
 (ball)		 (feather)								

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 2

Sub-Goals 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Compare masses of object using metric measurements.	<ul style="list-style-type: none"> • Balance means having the same weight as another object. On a balance scale, the pans will be at the same level. 	<ul style="list-style-type: none"> • Play a game called “We balance” where students try to choose objects that are the same weight and place them on a scale to see if they balance or not. 		<ul style="list-style-type: none"> • Tell whether pairs of objects on a scale/balance are of equal weight, or heavier or lighter. Justify your responses..
4. Estimate and determine mass of familiar objects using metric measurements (gram, kilograms)	<ul style="list-style-type: none"> • Gram is the basic unit of measuring mass in the metric system. 1 000 grams = 1 kilogram 	<ul style="list-style-type: none"> • Estimating Mass Have students estimate and compare the mass of different items to 1 kilogram. Students then weight the objects to find the actual weight. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 1 Vol. 2 pgs. 342A-344A 	<ul style="list-style-type: none"> • Have students complete an activity sheet where they estimate and determine mass of objects using metric measurements (gram, kilograms).
5. Estimate, measure and compare temperatures.	<ul style="list-style-type: none"> • A thermometer is used to measure the amount of heat. Objects with a higher temperature are hotter. Lower temperatures are cooler. 	<ul style="list-style-type: none"> • Place frozen or cold potatoes in bags (1 per bag) also place hot/warm potatoes in other bags. First child chooses a bag and tries to guess; by touch, whether the potato is hot or cold. After guessing, other members of the group decide if the potato is hot or cold. If the guess is correct, the first child gets a counter, and the bag is returned to the group and mixed with the other bags. The other children take turns for an allotted time. The child with the most counters wins • Use an outdoor Fahrenheit thermometer to measure the temperature outside; record the morning and afternoon measurements, then compare those on specific days or times with others. 	<ul style="list-style-type: none"> • Mathematics Plus Bk. 1, Teacher’s Edition Vol. 2 pg. 285 • Mathematics Plus Bk. 1 Teacher’s Edition Vol. 2 pg. 286A • Harcourt Math Bk. 2 Vol. 2 pgs. 293A & 294A 	<ul style="list-style-type: none"> • Read and compare temperatures from a thermometer and chart in terms of hotter, colder, warmer, or cooler. • Tell whether the items are hot or cold by touch

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 2**

Sub-Goals 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
6. Relate an event to the appropriate part of the day	<ul style="list-style-type: none"> • A.M. means in the morning and P.M. means in the afternoon on a twelve hour clock. • Times of day are morning, after noon or night. <p>Use hours like 12 o'clock, 3 o'clock and 9 o'clock.</p>	<ul style="list-style-type: none"> • Draw pictures of 3 activities they do each day, and then write when each one occurs. E.g. eating breakfast playing out-side, going to bed (morning, afternoon, night) or e.g. coming to school, eating lunch, leaving school (9 o'clock, 12 o'clock, 3 o'clock). Afterwards arrange activities in order of first, next, last. • Work cooperatively using a flannel board to sort pictures of activities to correlate with the times of day when they would happen. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 1, Teacher's Edition Vol. 2 pgs. 252, 265 269, 270 • Mathematics Plus Bk.1- Teacher's Edition Vol. 2 pgs.314. • www.allentowns.org 	<ul style="list-style-type: none"> • Give appropriate examples of activities for times of day. • Sort pictures correctly using the different times of the day. • Use interactive game on www.allentowns.org where students identify the time of day for activities. The teacher can identify the time it took the child to finish the activity as well as see the child's overall score.
7. Name the days of the week and months of the year in sequence.	<ul style="list-style-type: none"> • The days of the week are Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday. • The months of the year are January February, March... December. • Connect days of the week and months of the year with ordinal numbers. For example: Monday-2nd 	<ul style="list-style-type: none"> • Use index cards or a calendar to identify the days of the week and months of the year. • While standing in a circle, students say the names of days or months, in their correct order - First child says Sunday, the next say Monday, and the like. The child who says the incorrect day must face the outside of the circle. The game continues until everyone has had a turn and they have come to Saturday. 	<ul style="list-style-type: none"> • Mathematics Plus Bk. 1 Teacher's Edition Vol. 2 pgs. 325A & 325 • Harcourt Math Bk. 1, Teacher's Edition Vol. 2 pgs. 267 & 268. • Mathematics in Motion: A Resource Book for Primary Teachers, pg. 98 	<ul style="list-style-type: none"> • Arrange in order the days of the week and months of the year.

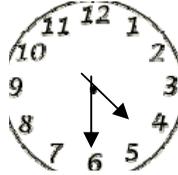
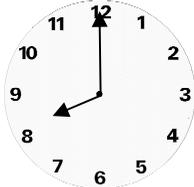
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 2**

Sub-Goals 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
8. Read a calendar for the month, year, and date.	<ul style="list-style-type: none"> A calendar is a system of determining the beginning, length, and divisions of a year and for arranging the year into days, weeks, and months 	<ul style="list-style-type: none"> Give each child a copy of the same calendar page and have them point out the month and say its name, along, with the year. Ask them to find a particular date- E.g. September 1st and have them tell which day was that(Monday) 	<ul style="list-style-type: none"> Harcourt Math Bk. 1, Teacher’s Edition Vol. 2 pgs. 267A &268A 	<ul style="list-style-type: none"> Correctly identify and tell the month, year, or date when asked.
9. Make associations between months, days, and weeks on calendar.	<ul style="list-style-type: none"> Association is the relationship between two data. For example days and months. Example of associations Christmas Day: December 25th Independence Day: July 10th Opening of school- September Valentine’s Day: February 14th 	<ul style="list-style-type: none"> Using a calendar, children find and name the month for their birthdays. At the start of each month, discuss holidays, special occasions, or school events that will occur. Highlight these events on a class calendar using cut-outs, Stickers, etc. E.g. Valentine’s Day – Hearts, Thanksgiving- Cornucopia, Birthday- Cake, Candles, Balloons. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1, Teacher’s Edition Vol. 2 pgs. 267A & 268A 	<ul style="list-style-type: none"> Use a calendar to make associations between months, days, and weeks
10. Identify equivalent relationships between days, months, years, and hours.	<p>24 hours = 1 day 7 days = 1 week 12 months = 1 year 365 days = 1 year 366 days = 1 leap year</p>	<ul style="list-style-type: none"> In cooperative groups students complete the following: <ol style="list-style-type: none"> How many <i>days</i> and/or <i>weeks</i> between two dates Year - Month - Day Counter How many years, <i>months</i> and <i>days</i> are there between two calendars ... 	<ul style="list-style-type: none"> Harcourt Math Bk. 1, Teacher’s Edition Vol. 2 pgs. 267A & 268A 	<ul style="list-style-type: none"> Students write their own problems dealing with equivalency of days, months, years, and hours. Students also supply the answers for the problems.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 2**

Sub-Goals 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>11. Tell time to the hour, half hour, and quarter hour on an analog clock.</p>	<ul style="list-style-type: none"> Identify the number of minutes past by counting by 5's E.g. the number (1) one represents 5 minutes, two (2) = 10 minutes, etc. The highest we can count to is 60 which is at the number 12. This represent one (1) hour. At 6, were halfway around the clock. There are 15 minutes in a quarter hour. And 60 minutes equals one hour. Time is determined by observing the positions of the hour and minute hands (short and long hands) i.e. if the minute (longer hand) is on 12, we say o'clock and if it is on 6 we say half past(30 minutes 	<ul style="list-style-type: none"> Display a flashcard for a specific time. Students fix the minute and hour hands to correspond with the time E.g. <div style="border: 1px solid black; padding: 2px; display: inline-block; margin: 5px;">4:30</div>  <p>The long hand is on 6 the short hand is between 4 and 5.</p> Using paper- plate clocks, students position the long and short hands as directed, and then read the time shown. e.g.  <p>The clock shows 8 o'clock or 8:00. *Students can model times for ½ hours, quarter past, or quarter to, as well.</p> 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Teacher's Edition Vol. 2. pgs. 253A-262A 	<ul style="list-style-type: none"> Arrange a clock's hands to display given times to the hour, half hour, and quarter hour.

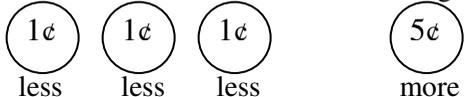
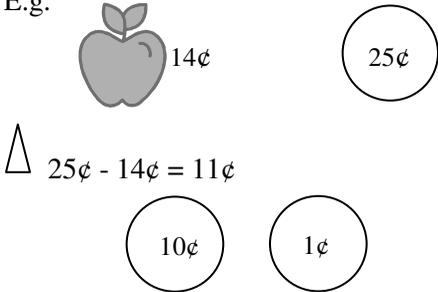
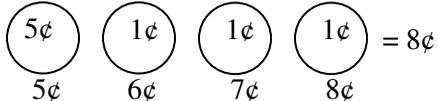
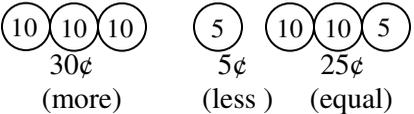
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 2

Sub-Goals 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT										
<p>12. Identify and use coins and bills in both Bahamian and U.S. currencies.</p>	<ul style="list-style-type: none"> • Identify Bahamian and American monetary units and name them. • Names of currencies tell how much each is worth, as well as which have the same value or are worth the same amount. <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Bahamian Coins</td> <td style="width: 50%;">American Coins</td> </tr> <tr> <td>one cent (1 ¢)</td> <td>penny</td> </tr> <tr> <td>five cents (5¢)</td> <td>nickel</td> </tr> <tr> <td>-</td> <td>half dollar</td> </tr> <tr> <td>-</td> <td>dollar</td> </tr> </table> <ul style="list-style-type: none"> • Bahamian bills: \$1, \$5, \$10, \$20, \$50, \$100 • All coins bear the Bahamian Coat of Arms on one side with the words "Commonwealth of The Bahamas" and the date. The reverse of the coins show objects from Bahamian culture with the value of the coins in words. • The 1 cent has a starfish, the 5-cent a pineapple, the 10 cent two bonefish, the 15 cent a hibiscus, and the 25 cent a native sloop. 	Bahamian Coins	American Coins	one cent (1 ¢)	penny	five cents (5¢)	nickel	-	half dollar	-	dollar	<ul style="list-style-type: none"> • Using laminated, plastic, or real coins (or bills) students explore, name, discuss the characteristics and value of each. • Sort coins into groups to distinguish Bahamian or American by looking for common images. For example, Bahamian (coat of arms) or American (president's heads) 	<ul style="list-style-type: none"> • www.centralbankbahamas.com • Bahamian play money • Harcourt Math Bk.1 Vol. 2 pgs. 227A-234A 	<ul style="list-style-type: none"> • Tell the name and value of a particular coin (or bill) • Group coins correctly as either Bahamian or American. • Identify the value (s) of coins and pair them correctly.
Bahamian Coins	American Coins													
one cent (1 ¢)	penny													
five cents (5¢)	nickel													
-	half dollar													
-	dollar													

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 2**

Sub-Goals 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
13. Count, compare, and make change using a collection of coins (Bahamian and US) of amounts to \$10.00 or less.	<ul style="list-style-type: none"> Count groups of coins which are either of the same value or mixed values to a total of \$10.00, or less For example, all pennies or pennies and dimes Decide whether one group of coins is worth more or less than another. e.g.  Use appropriate strategies to deduce how much money is left when some has been spent and create change. E.g.  	<ul style="list-style-type: none"> Play a 'shopping' game using tagged items to sell. Give customers (students) a specific amount of money. E.g. 50¢. Cashier (student) must give the customer the correct change once he or she has made a 'purchase'. E.g.  costs 26¢ Δ Change = 24¢. Count a group of coins correctly based upon their value to \$10.00 pennies - 1¢, 2¢, 3¢... nickels - 5¢, 10¢, 15¢, ... dimes - 10¢, 20¢, 30¢... quarters - 25¢, 50¢, ...* use like or mixed coins Distinguish the value of coins to make trades. E.g. 1 dime can be traded for 10 pennies or 2 nickels. Create groups of coins that have a greater, lesser, or equal amount as another 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Teacher's Edition Vol. 2. pgs.233A - 248A Harcourt Math Bk. 1 Teacher's Edition Vol. 2 pgs. 228,230,231A,231-232 Harcourt Math Bk. 1 Teacher's Edition Vol. 2 pgs. 238A-242 Harcourt Math Bk. 1 Teacher's Edition Vol. 2 pgs. 241A-242 	<ul style="list-style-type: none"> Tell how much change should be given back and show that amount using coins Choose the appropriate counting styles when counting out coins and give the correct amount. E.g.  = 8¢ Count to find the amount in one group, and then find an amount equal in value so as to trade. Choose/use coins to make higher, lower, or equal values. 

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 2**

Sub-Goals 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT				
14. Use the symbols \$, ¢, and · (decimal point) correctly.	<ul style="list-style-type: none"> Read and use math symbols that relate to money. <p>\$ = dollar sign ¢ = cent sign</p> <ul style="list-style-type: none"> · = decimal point that separates dollar and cents values/amounts. E.g. \$5.26 is read as five dollars and twenty-six cents. 	<ul style="list-style-type: none"> Orally tell the value of written amounts. E.g. \$2.14 = two dollars and fourteen cents. Write or place symbol cards where they belong to show correct values E.g. 6 0 4 is suppose to be six dollars and four cents <p>△ it should be shown as</p> <div style="text-align: center;"> <table style="border: none; margin: auto;"> <tr> <td style="border: 1px solid black; padding: 2px 5px;">\$</td> <td style="padding: 0 5px;">6</td> <td style="border: 1px solid black; padding: 2px 5px;">·</td> <td style="padding: 0 5px;">04</td> </tr> </table> </div>	\$	6	·	04	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Teacher's Edition Vol. 2 pgs. 245A & 246A. Math Jingle CD 	<ul style="list-style-type: none"> Tell amounts by reading the written forms. Put symbols in their appropriate positions.
\$	6	·	04					
15. Create and solve story problems using whole numbers and money.	<ul style="list-style-type: none"> Steps for solving word problems <ol style="list-style-type: none"> Read List Define Choose a strategy (Draw a picture) 	<ul style="list-style-type: none"> In cooperative groups, students create, solve problems, and report findings to the class. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Teacher's Edition Vol. 2, pgs. 247A & 248A <ol style="list-style-type: none"> Problem Solving Think Aloud TR 124 	<ul style="list-style-type: none"> Create verbal or written story problems and the answers that involve adding or spending money. 				

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 2

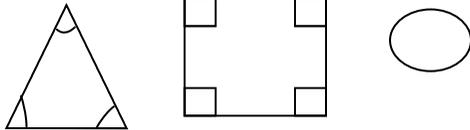
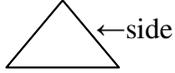
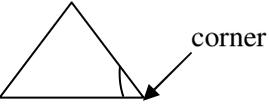
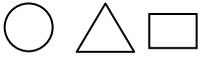
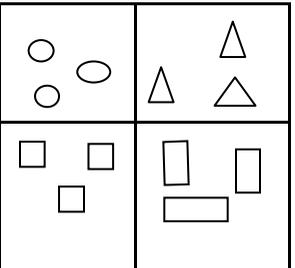
Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

Essential Questions

1. How can I identify and describe solid figures by describing the faces, edges, and sides?
2. In what ways can I match solid geometric figures to real-life objects?
3. How can I put shapes together and take them apart to form other shapes?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 2**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Identify properties of common plane shapes such as number of sides and angles.</p>	<ul style="list-style-type: none"> Plane shapes are 2 dimensional figures. <ol style="list-style-type: none"> A circle is flat and round in shape. Triangle is a shape that has 3 sides and 3 angles. Rectangle is a plane shape with 4 sides and 4 corners but 2 sides are longer. The opposite sides are the same length. Square is a type of rectangle with 4 equal sides and 4 equal angles. Side is the straight part of a shape. A corner is the place where two sides meet. 	<ul style="list-style-type: none"> Point out the sides and corners on plane shapes using cut-outs. Count to tell which shapes have less or more the same number of sides or corner than others. e.g.  Find a shape that has the same number of corners as the shapes below.  	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Teacher's Edition Vol. 2 pg. 286 Promethean Board 	<ul style="list-style-type: none"> Outline sides on drawings of plane shapes. e.g.  Circle corners on drawings of plane shapes. e.g. 
<p>2. Sort and classify flat shapes.</p>	<ul style="list-style-type: none"> Flat shapes are the same as plane shapes. Plane shapes are two dimensional. Plane shapes have length and breath/width but no thickness. 	<ul style="list-style-type: none"> Following oral instructions, students use a Ziploc bag of shapes to make groups of different specifications. For example, sort by number of sides and corners, large small (medium) <ul style="list-style-type: none"> Sort by shapes.  Sort by corners/sides.  <p style="text-align: center;">0 3 4</p>	<ul style="list-style-type: none"> www.mathsisfun.com Harcourt Math Bk. 1 Vol. 2 pgs. 295A& 296A Carnival Countdown CD Pattern blocks 	<ul style="list-style-type: none"> Correctly paste plane shapes into appropriate groups according to their attributes. e.g. 

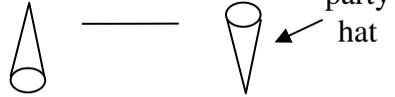
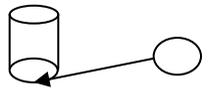
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 2

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Identify a sphere, cone, cube, and cylinder.	<ul style="list-style-type: none"> Identify common 3 dimensional figures by their specific characteristics and relate them to real objects. Sphere is a round object whose curved surface is the same distance from the center at all points. Cone is a solid, pointed figure that has a flat round base. Cube is a solid with 6 square faces. Cylinder is a solid or hollow figure that is shaped like a can. 	<ul style="list-style-type: none"> Select/point to solid figures as their names are given. E.g. Find the sphere  <ul style="list-style-type: none"> Look for examples of given solid figures in the immediate environment e.g. Find something that is a cube (block, gift box) Play a game, “What am I?” where one partner describes attributes of a solid figure and the other partner guesses the shape. If it is correct, the students gets a point. E.g. I have 6 faces. What am I? 	<ul style="list-style-type: none"> Harcourt Math Bk.1 Teacher’s Edition Vol. 2 pg. 286 Solid Shapes Harcourt Math Bk.1 Teacher’s Edition Vol. 2 pg. 287A 	<ul style="list-style-type: none"> Match solid figures to like objects. E.g.  <ul style="list-style-type: none"> Select solid figures by clues given about their attributes. Identify solid shapes. E.g. point to an object that is a sphere. (ball, marble etc)
4. Sort and classify solid shapes according to attributes (Continued).	<ul style="list-style-type: none"> Sort and classify mean to separate and group. Three- dimensional figures may be classified by comparing similarities and differences in their attributes. Types of Movements a). Roll: move by turning over b). Stack: arrange objects one on top of the other c). Slide: move to a new position without turning or flipping. d). Flat surfaces- smooth, flat parts of solid figures, also called a face. <ul style="list-style-type: none"> i. Sphere 0 faces ii. Cone 1 face 	<ul style="list-style-type: none"> Work in teams to put a bag of shapes into groups, according to their attributes. The team that finishes first wins. Explore properties of solid figures to compare their movements and then put them into groups according to their similarities. E.g. spheres, cones and cylinders can roll. Trace the flat surface of solid shapes to see which are similar e.g. cylinders and cones have circular faces. 	<ul style="list-style-type: none"> Harcourt Math Bk.1 Teacher’s Edition Vol. 2 pgs. 289A- 290. Solid Shapes 	<ul style="list-style-type: none"> Create a solid shape booklet by cutting and pasting pictures of objects like spheres, cones, cylinders, and cubes from magazines e.g.  <ul style="list-style-type: none"> Discuss movements various solid figures are able to make.

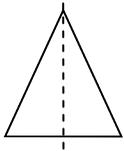
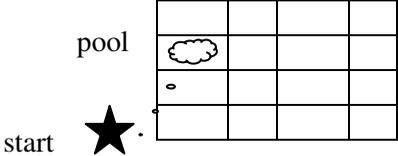
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 2**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>4. Sort and classify solid shapes according to attributes.</p>	<p>iii. Cube 6 faces iv. Cylinder 2 faces</p> <ul style="list-style-type: none"> Physical attributes are visible characteristics that readily distinguish one figure from another e.g. shape, size, or color. 	<ul style="list-style-type: none"> Identify solid figures that have the same color, shape, or size, then put them into groups e.g. sizes. Large spheres  Medium spheres - Students use spheres to make various shapes. E.g. animals.  Small spheres  		
<p>5. Differentiate between plane and solid shapes using words, pictures, or objects.</p>	<ul style="list-style-type: none"> Plane shapes are two- dimensional or flat shapes. For example: circles, triangles, rectangles, squares. Solid shapes are three dimensional shapes. For example: spheres, cones, cylinders, and cubes. Flat surface on solid shapes are plane shapes. 	<ul style="list-style-type: none"> Explore two- and three-dimensional shapes to understand their differences using common objects. e.g. <ul style="list-style-type: none"> Circle – face of round clock. Square – tiles on floor. Triangle – (musical instrument) triangle Rectangle – sheet of paper (legal size) Sphere - basketball Cone - party hat Cylinder- soup can Cube – block Construct plane and / or solid shapes using a variety of materials - E.g. play dough, toothpicks, blocks, pipe-cleaners, etc, and then compare them. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Teacher’s Edition Vol. 2 pgs 292 A & 293A. 	<ul style="list-style-type: none"> Match plane shapes to appropriate objects with like shape. E.g.  ball  party hat Pair plane shapes with solid shapes which have like flat surfaces. E.g.  Create a model of their community using plane and solid shapes (it is recommended to use recycled materials.)

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 2

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>6. Identify and draw lines of symmetry.</p>	<ul style="list-style-type: none"> A line of symmetry is a line that divides a shape into 2 equal parts that are the same shape and size. <p>e.g.</p>  <p style="text-align: center;">line of symmetry</p>	<ul style="list-style-type: none"> Fold pre-cut plane shapes or objects to create 2 equal congruent parts, then trace or draw the line of symmetry.  <ul style="list-style-type: none"> Trace common objects and state whether the objects have one, more than one or no lines of symmetry. <p>e.g.</p>  <p style="text-align: center;">0 1 4</p>	<ul style="list-style-type: none"> Harcourt Math Bk.1 Teacher's Edition Vol. 2 pgs.301A, 302A Harcourt Math Bk.1 Teacher's Edition Vol. 2 pgs. 303A- 304A Harcourt Math Bk.1 Teacher's Edition Vol. 2 pg. 304A 	<ul style="list-style-type: none"> Given a set of objects or shapes students identify lines of symmetry. Draw lines of symmetry on shapes or objects
<p>7. Find and name locations with relationships like near to and far away in a co-ordinate system such as maps (Continued).</p>	<ul style="list-style-type: none"> Co-ordinate System an organized method used to locate positions and, or places, on a map. Identify specific places and or objects by following given directions. Example: 3 spaces above. Above: in a higher place Below: in a lower place 	<ul style="list-style-type: none"> Move through a grid by following directions to get to a specific location/ identify the location. <p>E.g. Point start box. Go up 3 boxes.</p> 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Teacher's Edition Vol. 2 pgs. 305A- 306A 	<ul style="list-style-type: none"> Act out position terms. e.g. up - point up-ward, raise arms Follow oral/written directions to get to a particular spot on a grided map.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 2**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
7. Find and name locations with relationships like near to and far way in a co-ordinate system such as maps.	<ul style="list-style-type: none"> • Behind: at the back of • In front of: further forward of someone or something. • Near to: a short distance away from someone or something • Up: into higher position • Left: on the west of your body when facing north. • Right: on the east of your body when facing north • Down: into lower position. 			<ul style="list-style-type: none"> • Given a set of objects or shapes, students identify lines of symmetry. • Draw lines of symmetry on shapes or objects

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 2

Sub-Goal 6: Collect, organize; and analyze data using statistical methods; predict results; and interpret uncertainty using concepts of probability

Essential Questions

1. How does a graph give information without using many words?
2. How is predicting better than a wild guess?
3. How can we use range and mode in everyday life?

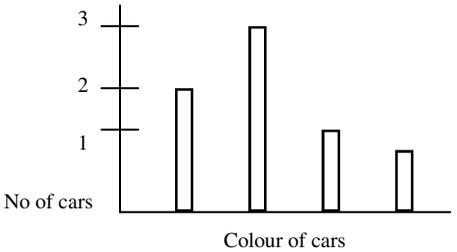
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 2**

Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Collect, record, and interpret data on concrete and pictographs.	<ul style="list-style-type: none"> • Gather information for a particular subject or topic, then sort the data and represent it on a particular type of chart so that it is easily read and understood. • Concrete Graph: a graph which displays data using actual objects. • Pictograph or pictures graph: a graph that uses pictures or symbols to display information. 	<ul style="list-style-type: none"> • Participate in an in- class survey that uses 10-15 students e.g. choose a favorite fruit from a given group (bananas, apples, oranges, grapes, pears) • Another variation could be a Bahamian list if children have been exposed (plums, mangoes, sapodillas, tamarinds, guineps). Once the data is gathered, record it onto a mounted graph. • Respond logically to questions about the data shown. For example, which fruit did the students love best? How many children’s favourite fruit is pear? Name the fruit that was the least favourite of the class. 	<ul style="list-style-type: none"> • Harcourt Math Bk.1 Vol. 2 – Teacher’s Edition Pgs. 212, 217-222 a. Reteach ,Practice, Problem Solving Challenge worksheets 15.3 	<ul style="list-style-type: none"> • Record data on one or more kind of graph. • Use a graph to respond to questions relating to the information displayed. • Gather information via family members, neighbors, etc. To create a graph.
2. Collect, record, and interpret data on horizontal and vertical bar graphs (Continued).	<ul style="list-style-type: none"> • Bar Graph: a graph that uses rectangular bars to show data in two ways i.e. vertical bar graph-bars go up from the bottom and horizontal bar graph-bar go from left to right. • A Bar graph includes: <ul style="list-style-type: none"> e. 2 axis with labels f. Scale g. Title 	<ul style="list-style-type: none"> • Cooperatively or independently, conduct surveys on a variety of topics to create graphs. <ul style="list-style-type: none"> E.g. - pets e. favorite colors f. things we like to do g. favorite foods. 	<ul style="list-style-type: none"> • Harcourt Math Bk.1 Vol. 2 pgs. 219A-220A • Bar Graph 	<ul style="list-style-type: none"> • Students construct a Bar graph of their favourite television shows

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 2

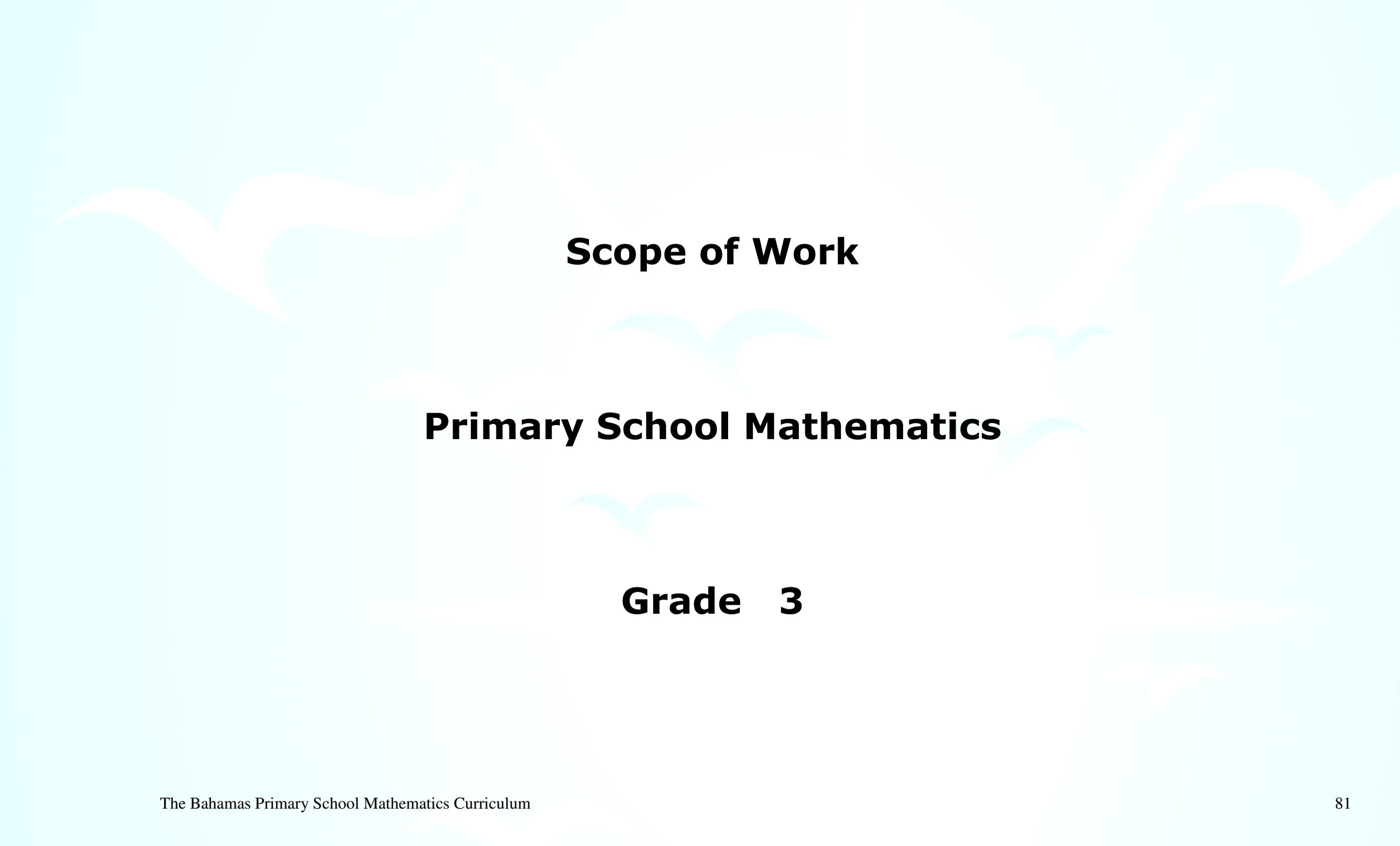
Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Collect, record, and interpret data on horizontal and vertical bar groups. (Continued).				
3. Draw conclusions and make predictions from graphs, both concrete and pictographs.	<ul style="list-style-type: none"> Come to a decision, or guess what an outcome will be based upon information that is shown or given. 	<ul style="list-style-type: none"> Students try to deduce from a group of toys, which will have the largest and smallest group on a concrete graph. Use an outlined area (tape) on the floor. Each child places his toy into the appropriate area to check outcomes. Use coloured paper squares where children observe the pattern being formed to predict what will happen next. E.g. 1- red, 2 - yellows, 3- blues, 4 -greens, 5- pinks. By coloring in the bars, students will note that each new bar/line is one box more than the previous one. *This activity can also be done using a picture graph. 	<ul style="list-style-type: none"> Harcourt Math Bk. 1 Vol.2 pgs. 221A 	<ul style="list-style-type: none"> Demonstrate the use of logical reasoning when drawing conclusions or making predictions. Predict and explain what will be and is happening on the graph.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 2

Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
4. Apply terms like “likely” and “unlikely” to everyday situations/events.	<ul style="list-style-type: none"> Likely means that an event will happen Example: I will go to grade three next year Unlikely means that an event will NOT happen. Example: The same principal will be at the school for 35 years. 	<ul style="list-style-type: none"> Spin for a Colour <ol style="list-style-type: none"> Students work in pairs. Each pair is given a coloured spinner (red, green, blue, yellow, and purple). Students read from cards different scenarios. For example, Is it likely to get a green? Is it likely to get a purple? Is it likely to get orange? Is it likely to get pink? Students justify their responses. 	<ul style="list-style-type: none"> Mathforum.org 	<ul style="list-style-type: none"> Students write in their journals events that are likely and unlikely.
5. Solve questions related to data representation, including the range and mode.	<ul style="list-style-type: none"> The range of a set of data is the difference between the highest and lowest values in the set. Example: { 8, 9, 10, 22, 25} Range 25- 8 = 17 The mode is number that occur most often in the set. Example: { 0, 1, 2, 2, 2, 3, 4} Mode: 2 	<ul style="list-style-type: none"> Use graphs to find the range and mode of activities/events. 	<ul style="list-style-type: none"> Mathforum.org 	<ul style="list-style-type: none"> Create graphs and identify the range and mode.

The background features a light blue sky with several stylized birds in flight, some in white and some in light blue. A bright sun or light source is visible at the top center, with rays of light extending downwards across the page.

Scope of Work

Primary School Mathematics

Grade 3

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 3

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

Essential Questions

1. What influence does the placement of a digit have on the digit's value?
2. What are the most effective ways for estimating sums and differences using larger numbers?
3. How do I add and subtract numbers including fractions with like and unlike denominators?
4. How are Roman numerals used in everyday life?
5. What is the difference between the numerator and the denominator?
6. What steps are involved in finding equivalent fractions?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 3**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Use ordinal numbers to identify positions from first to fiftieth.	<ul style="list-style-type: none"> Ordinal numbers tell the position of an object or a person. Example of ordinals 1st first 2nd second 3rd third 4th fourth 5th fifth 21st twenty first 	<ul style="list-style-type: none"> Have students form a line according to height (i.e. tallest or shortest). Then have students count their place on the line (i.e. 1st, 32nd, 3rd, 4th, ...) Ask the following questions <ul style="list-style-type: none"> Who is first on the line? Who is third, tenth...? What place is Lisa? Put students in groups. Have each group run a race on the playing field. Choose some students observing the race to pin ribbons on the competing students according to the order in which they finished the race. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 pg. 1 Mathematics Plus pg. 3 	<ul style="list-style-type: none"> Place five different objects in a row. Have students name or tell the position of each item.
2. Read, write, and recite sequences of numbers through 9 999 forward and backward.	<ul style="list-style-type: none"> Sequence numbers from greatest to least or least to greatest. Sequence numbers up to 9 999 using odd, even, multiples of fives and the like. 	<ul style="list-style-type: none"> Teacher divides class into two groups. One group will be given number cards. The other group will have the corresponding numbers written on cards in word form. Students will then be allowed to find their matching partner. Students freeze when they have found their partner. Give students a set of numbers. Have them rearrange each number to make the largest number possible: E.g. 5 903; 2 980; 1600 (rearranged: 9503, 9 820, 6 100). Then have students place the numbers in order from least to greatest: 6 100; 9 503; 9 820. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 pgs. 104 & 105 Mathematics Plus Bk. 3 pg. 15 	<ul style="list-style-type: none"> Teacher checks cards to see if partners match.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 3**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT																
3. Identify the place and value of a given digit in a number up to 9 999 (Continued).	<ul style="list-style-type: none"> A digit is a symbol used in numeration system: Ten digits used in our base – ten numeration system are: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. Numbers are made up of digits. Example: <table style="margin-left: 20px; border-collapse: collapse;"> <tr> <td style="padding: 0 10px;">Thousands</td> <td style="padding: 0 10px;">Hundreds</td> <td style="padding: 0 10px;">Tens</td> <td style="padding: 0 10px;">Ones</td> </tr> <tr> <td style="text-align: center;">8</td> <td style="text-align: center;">6</td> <td style="text-align: center;">4</td> <td style="text-align: center;">2</td> </tr> </table> Place value is the value of the place a digit has in a number. The last digit in a whole number always goes in the ones place; the second to last digit always goes in the tens place etc. <table style="margin-left: 20px; border-collapse: collapse; width: 100%;"> <thead> <tr style="background-color: #cccccc;"> <th style="padding: 2px 5px;">Thousands</th> <th style="padding: 2px 5px;">Hundreds</th> <th style="padding: 2px 5px;">Tens</th> <th style="padding: 2px 5px;">Ones</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 2px 5px;">8</td> <td style="text-align: center; padding: 2px 5px;">6</td> <td style="text-align: center; padding: 2px 5px;">4</td> <td style="text-align: center; padding: 2px 5px;">2</td> </tr> </tbody> </table> <p>E.g. The place of the 8 is thousands.</p> <ul style="list-style-type: none"> The value of the 8 is 8 thousands or 8000. The place of the 4 is tens. The value of the 4 is 4 tens or 40. 	Thousands	Hundreds	Tens	Ones	8	6	4	2	Thousands	Hundreds	Tens	Ones	8	6	4	2	<ul style="list-style-type: none"> Play “Greatest Number Card Game”. Students work in pairs and put 4 blank lines on a piece of paper. <div style="margin-left: 20px;"> _____ </div> Teacher shuffles a deck of 10 single digit cards. Teacher randomly selects one card. Students place that digit in one of their 4 blanks keeping in mind they want to create the largest number. This continues 4 times. Teacher asks class for the numbers they wrote. Teacher asks questions like “How do you know you made the largest number?” Note: Play game for the lowest number. The place and value must be emphasized. Place value games Use the Promethean Board, or a chart to create numbers up to 9999. <ol style="list-style-type: none"> On each number, underline a digit and have students identify the place and value. If students get the problem correct they receive a point. (*Can be played individually or in groups). 	<ul style="list-style-type: none"> enVision Math Bk. 3 pg.4 Promethean Board Computer www.abc.teach.com Promethean Board 	<ul style="list-style-type: none"> Use the digits 5, 8, and 4 to create the largest number and explain how you know it is the largest number. Do similar exercises for lowest numbers. Students create 4 digit numbers where they identify the place and the value of selected digits. Write given numbers into words e.g. 572. (five hundred, seventy-two)
Thousands	Hundreds	Tens	Ones																	
8	6	4	2																	
Thousands	Hundreds	Tens	Ones																	
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SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 3

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Identify the place and value of a given digit in a number up to 9 999.		<p>Game: I have who has?</p> <ul style="list-style-type: none"> Numbers are written in different forms. Students must listen carefully to the clues. Read and figure out what number they have. I have 32, who has 6 tens and 7 ones etc. <p>Memory Game</p> <ul style="list-style-type: none"> Numbers can be written on separate cards and written in each form. Students take turns matching each form 		
4. Express a four-digit number in expanded form.	<ul style="list-style-type: none"> Expanded form is a number written as the sum of the values of its digits. For example: $1\ 350 = 1000 + 300 + 50 + 0$ Other ways to write a number: <ol style="list-style-type: none"> Standard Form: 8642 Expanded Form: $8000 + 600 + 40 + 2$ Word Form: eight thousand, six hundred and forty-two 	<ul style="list-style-type: none"> Students work in teams to play the game “Name that Expanded Form.” <ol style="list-style-type: none"> Flash a card with expanded rotation. Have students give the value. Flash card with the value and have students give the expanded form. The first group to get the problem correct receives a point. Group with the most points is the winner. 	<ul style="list-style-type: none"> enVision Math Bk. 3 pgs. 6 & 7 	<ul style="list-style-type: none"> In journals, create problems related to expanded form.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 3**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT												
<p>5. Represent, compare, and order numbers through 9999 using various forms.</p>	<ul style="list-style-type: none"> When you compare two numbers, you find out which number is greater and which is less. E.g. 3 462; 3 486 Compare the digits starting from left to right <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Thousand</th> <th>Hundreds</th> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">6</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">8</td> <td style="text-align: center;">6</td> </tr> </tbody> </table> <p style="text-align: center;"> ↑ ↑ ↑ same same different </p> <p style="text-align: center;">6 tens < 8 tens</p> <p>Therefore, 3 462 < 3 486</p> <ul style="list-style-type: none"> On the number line, numbers to the right are greater than numbers to the left. Numbers to the left are less than numbers to the right. You can also use a number line to compare numbers, you write them from greatest to least or from least to greatest. Example: least to greatest. 6 743; 6 930; 6 395 6 395; 6 743; 6 930 	Thousand	Hundreds	Tens	Ones	3	4	6	2	3	4	8	6	<p>Grand Winner Students work in pairs.</p> <ul style="list-style-type: none"> Give students place value mats. Each person rolls the number cube and puts a chip on their number in one of the placeholders. Once the child selects a place, he/she cannot move the chip/marker. When the 4 places are complete, the students compare the numbers using the correct symbol. Students order numbers using the numbers from the activity above. Give students problems to solve. E.g. Which number is halfway between the two numbers given: <ol style="list-style-type: none"> 1.) 1 and 10 2.) 20 and 40 3.) 50 and 100 	<ul style="list-style-type: none"> Place Value Chart Number Line enVision Math Bk. 3 pg. 12-17 Destination Math Course MSC 11 Module 1: Number Sense Number Cube/die 	<ul style="list-style-type: none"> Compare and organize numbers Decrease value of given number by 1000, 100 or 10 Increase the value of a given number by 1000, 100, 10
Thousand	Hundreds	Tens	Ones													
3	4	6	2													
3	4	8	6													

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 3

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
6. Read and write Roman numbers to XXV (25).	<ul style="list-style-type: none"> Roman numbers have been used for hundreds of years. Roman numerals are written with letters. I = 1 VI = 6 XI = 11 II = 2 VII = 7 XII = 12 III = 3 VIII = 8 XIII = 13 IV = 4 IX = 9 XIV = 14 V = 5 X = 10 XV = 15 XVI = 16 XXI = 21 XVII = 17 XXII = 22 XVIII = 18 XXIII = 23 XIX = 19 XXIV = 24 XX = 20 XXV = 25 	<ul style="list-style-type: none"> Have students answer the following question in roman numerals. <ol style="list-style-type: none"> How old are you? How many boys are in your class? How many girls are in your class? What day of the month is today? How many classes of animals are there? Provide students with standard numbers and have them provide the equivalent Roman number. E.g. 12 (XII), 23 (XXIII), etc. 	<ul style="list-style-type: none"> Heath Mathematics Level 4 pg. 45 www.abcteach.com Mathematics in Motion: A Resource Book for Primary Teachers, pg. 41 	<ul style="list-style-type: none"> Have students write and read roman numerals to XXV.
7. Calculate and convert combinations of Roman numbers to standard numerals and vice versa.	<ul style="list-style-type: none"> Our system is the decimal system which is based on powers of 10. Roman numerals are based on addition and subtraction. E.g. VI = 5+1 = 6. When the symbol for the smaller number is written to the right of the greater number, add. No more than three symbols for smaller numbers are used this way. IV = 5 – 1 = 4 When the symbol for a smaller number is to the left of the greater number, subtract. No more than one symbol for a smaller number is used this way. Example: XX= 20; VII = 7 	<p>Game: Mixed and Match</p> <ol style="list-style-type: none"> Students form a circle and are given flash cards with either the Roman numeral or the standard number counterpart. The teacher says the word mix and then match Students find the persons with the Roman numeral counterpart and then share their findings with the class. 	<ul style="list-style-type: none"> enVision Math Bk. 3 pg.395 	<ul style="list-style-type: none"> Match roman numbers with the Arabic equivalents. Calculate combinations of Roman Numbers to standard numerals. e.g. XXV = 25 XIV = 14

SCOPE OF WORK
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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
8. Identify and use numbers in everyday life.	<ul style="list-style-type: none"> • Numbers are all around us. We see and use them daily. • Numbers can be found: <ol style="list-style-type: none"> a. on our homes b. on building c. on license plates d. in and out of classrooms e. on signs (telephone) f. on labels g. in restaurants h. on price tags 	<ul style="list-style-type: none"> • Take students on a school walkabout to find numbers on classroom doors, on cars, buses, trucks, and vans license plates or take them on a short walkabout in the community to see numbers on buildings such as homes or signs. <ol style="list-style-type: none"> a. Students write the numbers and use them in different ways. For example, they can add, subtract, put them in order from greatest to least or use patterns • Use newspapers for prices of grocery and telephone numbers of businesses. 	<ul style="list-style-type: none"> • enVision Math Bk. 3 pgs. 1-38 	<ul style="list-style-type: none"> • Have students name places where numbers are used in everyday life (E.g. bank, supermarkets) and write a story or poem about numbers.
9. Identify odd and even numbers and explain the relationship between them in addition and subtraction.	<ul style="list-style-type: none"> • Even numbers have a 0, 2, 4, 6, or 8 in the ones place • Odd numbers have a 1, 3, 5, 7 or 9 in the ones place. • Relationship $\text{Odd} + \text{Odd} = \text{Even}$ $7 + 3 = 10$ $\text{Odd} - \text{Even} = \text{Odd}$ $7 - 2 = 5$ 	<ul style="list-style-type: none"> • Have students use a hundred chart where they colour all the odd numbers red and all the even numbers blue. • Challenge students by timing the activity and using a hundred chart from 101 to 200. • Have students count to a certain number alternating claps and snaps. All of the claps are even numbers and all of the snaps are odd numbers. • Have students determine if the date and day of the school is odd or even. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 2 pgs 65 & 66 • Harcourt Math Bk..3 pgs.2 & 3 • Hundred chart • Coloured pencils 	<p>Discussion or writing</p> <ul style="list-style-type: none"> • How can you tell odd numbers from even numbers even if you are not skip-counting or using a hundred chart.

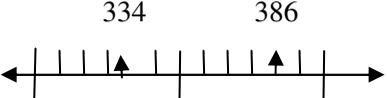
SCOPE OF WORK
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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
10. Skip count to 100 by 2s, 3s, 4's, 5s, 10s and 50s.	<ul style="list-style-type: none"> • Skip count means to skip a number or leave out a number while counting. Example: Counting by 2s: 2, 4, 6, 8, 10, 12 Counting by 3s: 3, 6, 9, 12, 15, 18 Counting by 4s: 4, 8, 12, 16, 20, 24 Counting by 5s: 5, 10, 15, 20, 25, 30 Counting by 10s: 10, 20, 30, 40, 50, 60, 50, 100. 	<ul style="list-style-type: none"> • Have students cover the squares on the hundred charts with beans. Partners take turns removing 2 beans at a time and coloring every second square yellow. • Partners replace the bean on the hundred chart and repeat the process this time removing 3beans at a time and colouring every third square blue. Partners replace the beans on the hundred chart and repeat the process, this time removing 4 beans at a time and colouring every fourth square red. Repeat the process and use different colours for skip counting 5,10, 50 • Have children discuss the patterns that the colored squares make on the chart. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 2 Teacher's Edition pgs. 67 & 68 • Hundred Chart Colour • Coloured pencils 	<ul style="list-style-type: none"> • Students create skip counting problems by starting at different points on the number line. For example counting by 50, start at 500 and end at 850.
11. Round numbers to the nearest ten and hundred (Continued).	<ul style="list-style-type: none"> • Rounding is one way to estimate when you want to know about how many. • A number line can help when rounding. • Rules for rounding to the nearest ten <ol style="list-style-type: none"> a. The digit in the ones place helps you to find the closest ten. If the digit in the ones places is 5 or more you round up. If the digit in the ones place is less than 5, the digit in the tens place remains the same. e.g. Round 43 and 47. 	<ul style="list-style-type: none"> • 10 counters for each pair of student. • Make and use a rounding tape • Make a poster showing the rounding rules • Make a number line to show how to round a number to the nearest ten and hundred. • Write a song/poem regarding the steps to take when rounding a number to the nearest ten or hundred. 	<ul style="list-style-type: none"> • Harcourt Math Bk.3 pgs. 28 & 29, 54, 74 • Mathematics in Motion: A Resource Book for Primary Teachers, pg. 45 	<ul style="list-style-type: none"> • Discuss steps to take when round a number to the nearest ten and hundred.

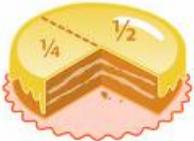
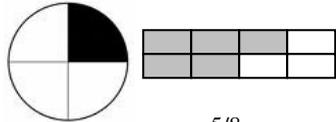
SCOPE OF WORK
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11. Round numbers to the nearest ten and hundred.	<div style="text-align: center;">  </div> <p>43 is closer to 40 and the 3 is less than 5. Therefore, 43 rounds to 40.</p> <p>a. 47 is closer to 50 and 7 is greater than 5. So 47 rounds to 50.</p> <ul style="list-style-type: none"> Rules for rounding hundreds <ol style="list-style-type: none"> Use the digit in the tens place to help you round. If the digit in the tens place is 5 or more round up. If the digit in the tens place is less than 5, the digit in the hundreds place remains the same. Example: Round 334 and 386 to the nearest hundred. <div style="text-align: center;">  </div> <p>334 is closer to 300 and 34 is less than 50. Therefore, 334 rounds to 300. 386 is closer to 400 and the 86 is more than 50 so 386 rounds to 400.</p>	<p>Making 0</p> <ul style="list-style-type: none"> Have students tell whether the number 3 is closer to zero (0) or 10. Then repeat the activity with groups of 4, 5, 6, and 7 counters; <ol style="list-style-type: none"> Ask students which groups were closer to zero than to 10. (3,4) Which groups were closer to 10 than to zero? (6,7) A plane is flying from Andros to Nassau. The total distance is 100 miles. After the plane flies 60 miles, one engine develops trouble. The pilot must decide whether to fly back to Andros or fly on to Nassau. What should the pilot do? Why? (fly to Nassau, the plane is closer to Nassau). <ol style="list-style-type: none"> Accept all reasonable answers and consider other issues that students may wish to raise. Discuss similar situations. Encourage students to share their thinking 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teacher's Edition pgs. 23 & 29 Mathematics Plus Bk. 3 Teacher's Edition pgs.45 & 46 Counters 	<ul style="list-style-type: none"> Discuss what steps or rules you follow when rounding a number to the nearest 10 and 100. Lesson Quiz: Round to the nearest Hundred and 10 <p style="margin-left: 40px;">66 = _____</p> <p style="margin-left: 40px;">108 = _____</p> <p style="margin-left: 40px;">684 = _____</p> <p style="margin-left: 40px;">251 = _____</p> <p style="margin-left: 40px;">345 = _____</p>

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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
12. Identify and write the fraction represented by drawings or concrete material	<ul style="list-style-type: none"> A fraction is a number that names an equal part of a whole or a set. A fraction is used to name a number that is less than 1  <p>$\frac{1}{4}$ of this circle is shaded</p> <p>a. Read: one fourth or one quarter. b. Write: $\frac{1}{4}$</p> <ul style="list-style-type: none"> The circle represents a whole. 	<ul style="list-style-type: none"> Have students work in groups of 3. Give fraction circles, halves, thirds and fourths to each group. Students select a circle and pretend that it is a pizza. The student with the appropriate circle holds it up and responds. Tanya invites 2 friends for dinner. She divides the pizza so that everyone has an equal slice. How many slices are there? (3 slices) Let students fold paper and shade to show different fractions. E.g. $\frac{1}{2}$ (cd or one half) of folded paper, thirds and quarters etc. 	<ul style="list-style-type: none"> Harcourt Math Teachers Edition Book 3 pgs. 412 & 413 Mathematics Plus Bk. 3 Teachers Edition pgs. 350 – 351 www.mathforum.com 	<ul style="list-style-type: none"> Discuss when writing a fraction, how do you know which number to use for the denominator and which for the numerator? Write a fraction for the shaded part.  <p>$\frac{1}{4}$ $\frac{5}{8}$</p> <p>$\frac{4}{8}$ or $\frac{1}{2}$</p>
13. a. Explain in words or pictures the relationship between a fractional part and its whole	<ul style="list-style-type: none"> The concept of a fraction as a part-whole relationship is where one or more equal parts of a whole are compared with the total number of these parts that it takes to make up the whole. 	<ul style="list-style-type: none"> Students solve problems Example: Darryl has a pizza with 5 equal parts. He ate 2 equal parts of it on Monday and saved the rest for the next day. How many parts are left for Tuesday? ($\frac{3}{5}$ parts). 	<ul style="list-style-type: none"> arb.nzcer.org.nz Harcourt Math Bk. 2 pgs. 335-341 	<ul style="list-style-type: none"> Write in journal describing the relationship between a fractional part and its whole. Use pictures or drawings to help you.

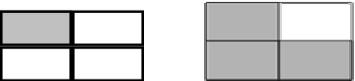
SCOPE OF WORK
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<p>b. Explain the role of the numerator and denominator in a fraction using words or pictures</p>	<ul style="list-style-type: none"> To understand fractions as part-whole relationships, students need to recognise the relationship between the denominator (total number of equal-sized parts that make up the whole) and the numerator (number of these parts of interest). <p>Example: $\frac{2}{5}$ of the marbles are shaded</p> <p style="text-align: center;">● ● ○ ○ ○</p> <p>Read: Two fifths Write: $\frac{2}{5}$</p> <ul style="list-style-type: none"> The marbles belong in a group. The number tells how many parts are being counted. The denominator tells how many equal parts are in the whole or group. It is the bottom number of a fraction. 	<ul style="list-style-type: none"> Have volunteers name the fractional parts that each circle represents. 	<ul style="list-style-type: none"> arb.nzcer.org.nz 	<ul style="list-style-type: none"> Write in journal describing the role of the numerator and denominator using pictures for illustration.

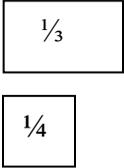
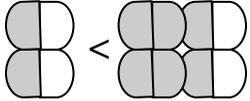
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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
14. Compare and order fractions with the same denominator.	<ul style="list-style-type: none"> Review the meaning of $>$, $<$, $=$ Models can help you compare parts of a whole. E.g. $\frac{1}{4}$ and $\frac{3}{4}$  <ul style="list-style-type: none"> When comparing fractions with like denominators, look at the numerators. $\frac{1}{4} + \frac{3}{4}$ $1 < 3$ $\therefore \frac{1}{4} < \frac{3}{4}$ <ul style="list-style-type: none"> After comparing the fractions, order them from least to greatest or greatest to least. 	<p>Fraction Game</p> <ul style="list-style-type: none"> Groups are given a deck of fractions flash cards. Students draw cards and compare them. Students then order the fractions from least to greatest or greatest to least. <p>Groups report on their findings</p>	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teachers Edition pgs. 434-437 	<ul style="list-style-type: none"> Quiz Example: Shade $\frac{4}{5}$ of the following objects  <p>Write fractions for unshaded parts.</p>
15. Compare and order fractions with different denominators (Continued).	<ul style="list-style-type: none"> The numerator is the top number in a fraction. It shows how many parts we have. The denominator tells how many parts are in the whole or group. It is the bottom number of a fraction. <p>E.g. $\frac{1}{4}$ numerator 4 denominator</p>	<p>Order Up</p> <ul style="list-style-type: none"> Use a game to practice comparing fractions Have each player write a fraction with a denominator of 2, 6, 8, 10, or 12 on an index card. Collect the cards and use them to create a number line on the chalkboard showing the fractions from least to greatest. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teachers Edition pgs 422 & 423 Scott Foresman Addison Wesley Math Bk. 3 pg. 418B Index cards bow 	<ul style="list-style-type: none"> Write $<$, $>$, or $=$ to fractions. You can use fractions strips to help. <p>Example</p> $\frac{1}{4} \square \frac{3}{4}$ $\frac{5}{6} \square \frac{4}{6}$ $\frac{1}{2} \square \frac{1}{3}$ $\frac{1}{3} \square \frac{2}{3}$

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15. Compare and order fractions with different denominators.	<ul style="list-style-type: none"> • Fraction bars can help you compare parts of a whole. Example: compare $\frac{1}{3}$ and $\frac{1}{4}$ <div style="text-align: center;">  </div> <p>The bar for $\frac{1}{4}$ is shorter than the bar for $\frac{1}{3}$. So, $\frac{1}{4} < \frac{1}{3}$ or $\frac{1}{3} > \frac{1}{4}$</p> <ul style="list-style-type: none"> • You can order three or more fractions from least to greatest or from greatest to least. <p>Example: Order the fraction from least to greatest. $\frac{1}{10}$, $\frac{1}{2}$, $\frac{2}{6}$</p> <ul style="list-style-type: none"> • Step 1 <p>Compare the fractions $\frac{1}{10}$ and $\frac{1}{2}$</p> <div style="text-align: center;">  </div> <p>$\frac{1}{10} < \frac{1}{2}$</p> <div style="text-align: center;">  </div> <p>$\frac{1}{2} > \frac{2}{6}$</p> <p>Therefore: $\frac{1}{10}$, $\frac{2}{6}$, $\frac{1}{2}$ Order the fraction from least to greatest $\frac{1}{10}$, $\frac{2}{6}$, $\frac{1}{2}$</p>	<ul style="list-style-type: none"> • Put the cards in the bowl. Pick a card and read the fraction. Then have players take cards and tell if the fractions are greater than or less than the one you selected. Continue until each player has a turn. Then play again with a different benchmark fractions. • Give students models to shade. Let them work in small groups to compare given models <div style="text-align: center;">  </div> <p>E.g. $\frac{1}{2}$ $\frac{6}{8} = \frac{3}{4}$</p> <ul style="list-style-type: none"> • Let students draw from a bag with given fractions to compare. The student with the larger fraction gets a point. The cards are put back in the bag and the process is repeated. The student who scores five points first is the winner. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3 Teachers Edition pgs 422 & 423 • Scott Foresman Addison Wesley Math Bk. 3 pg. 418B • Index cards • bowl 	<ul style="list-style-type: none"> • Write $<$, $>$, or $=$ to fractions. You can use fractions strips to help. <p>Example</p> <p>$\frac{1}{4}$ <input type="checkbox"/> $\frac{3}{4}$ $\frac{5}{6}$ <input type="checkbox"/> $\frac{4}{6}$</p> <p>$\frac{1}{2}$ <input type="checkbox"/> $\frac{1}{3}$ $\frac{1}{3}$ <input type="checkbox"/> $\frac{2}{3}$</p> <ul style="list-style-type: none"> • Give students sets of three fractions. Have them write them in order from least to greatest. <p>E.g. $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, = $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$</p>

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PRIMARY SCHOOL MATHEMATICS
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Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
16. Find equivalent fractions.	<ul style="list-style-type: none"> Review: Numbers that are multiplied by one, equal the same number. Example of one as a fraction. $3/3, 4/4, 2/2$ Multiply the numerator and denominator by the same number to find the equivalent fraction or divide the numerator and the denominator by the same number. E.g. $3/12 \times 4/4 = 12/48$ $3/12 \div 3/3 = 1/4$ These are equivalent because they represent the same amount ($1/4$). 	<ul style="list-style-type: none"> Interactive game where students match equivalent fractions. Equivalent Fraction Concentration Groups are given a deck of equivalent fractions flash cards that are place face down. Students draw two cards to find equivalent fractions. If the cards match, they keep the set. If the cards do not match, they are placed on the table. The student with the most matched cards is the winner. 	<ul style="list-style-type: none"> www.harcourt_school.com Harcourt Math Bk. 3 pgs. 418-420 	<ul style="list-style-type: none"> Students create and solve equivalent fractions.
17. Find the simplest form of a fraction (Continued).	<ul style="list-style-type: none"> Simplest Form: A fraction with the numerator and denominator that cannot be divided by the same number except 1. To simplify fractions, find a common factor that will divide evenly into the numerator and denominator. For example: $6/9$ 	<ul style="list-style-type: none"> Give groups problems involving different operations of fractions where students have to reduce fractions. Example: David found 12 seashells. Four of them were conch shells. The rest of them were soldier crab's shells. In simplest form, what fraction of the shells were soldier crab shells? 	<ul style="list-style-type: none"> enVisionMath Bk. 3 pg. 295 Harcourt Math Bk. 3 pgs. 436-438, 448, 482 	<ul style="list-style-type: none"> Students write sums of fractions in simplest form.

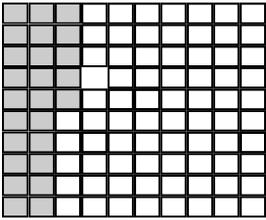
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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
17. Find the simplest form of a fraction.	<ul style="list-style-type: none"> • Find the factors of the numerator and denominator. Factors of 6 = 1, 2, <u>3</u> Factors of 9 = 1, <u>3</u> * The common factor is 3 • To simplify the fraction, divide by 3. $6/9 \div 3/3 = 2/3$ 			
18. Read, write and draw representation for tenths and hundredths (Continued)	<ul style="list-style-type: none"> • A decimal is a number that uses place value and a decimal point to show tenths, hundreds and so on. • Decimals can show tenths. For example 0.4 Write: 0.4 Read: four tenths • Hundredths are decimal numbers. They are shown on a decimal square. Count to find the decimal that names the shaded part. 	<ul style="list-style-type: none"> • How many tenths? • Give students 10 by 10 pieces of graph paper. Have them divide the square into 10 equal sections. Challenge students to use the drawing to solve exercises such as these: a. 0.3 b. 0.9 c. 0.7 • Relate a decimal to money by teaching 0.35 is 35¢. • Place students into groups. Give each group some ten cents and one cent pieces 	<ul style="list-style-type: none"> • Harcourt Math Bk.3 Teachers Edition pgs. 454 – 457 • Mathematics Plus Bk. 3 pgs.366 – 369 • Graph paper 1cm 	<ul style="list-style-type: none"> • Draw a decimal model to show the fractions three tenths. • How many equal parts of a hundredths decimal model would you shade to show 0.65? Explain your answer. • Read and write decimals for tenths and hundredths.

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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
18. Read, write and draw representation for tenths and hundredths.	<div style="text-align: center;">  </div> <p>Read: Twenty-five hundredths.</p> <p>Write: 0.25</p> <p>Fraction: 25/100</p>	<ul style="list-style-type: none"> • Let students explore and find the following: <ul style="list-style-type: none"> - How many ten cent pieces equal?: <ul style="list-style-type: none"> i) \$1.00, ii) 1/10 of a \$1.00 and (iii) 0.10 of \$1.00 - How many one cent pieces equal? (a) \$1.00 (b) 10¢ - What part of the \$1.00 is ?(a) 10¢ (b) 1¢ - Record findings in at least three (3) different ways. 		

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, & ALGEBRA
GRADE: 3

Sub Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

1. How can I use place value to identify and extend number patterns?
2. How do tables, charts, and/or lists work together to solve problems?
3. What are the different ways to represent the patterns or relationships?
4. How can we compare expressions?

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STRAND: PATTERNS, FUNCTIONS, & ALGEBRA
GRADE: 3

Sub Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Identify, extend and create repeating and growing numerical and symbolic patterns	<ul style="list-style-type: none"> A repeating pattern is made up of shapes or numbers that form a part that repeats. E.g. O, Δ, O, Δ, _____ 1, 3, 5, _____ A growing pattern is a pattern that extends based on the relationship of previous parts. Example: YBB, YBBB, YBBBB 	<ul style="list-style-type: none"> Have students (about 6) make a line around the room. Have the first few students do as you say. For example, stand, sit, stand, sit, and then ask, “What should the next child do?” 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teacher’s Edition pgs. 136 & 137 Manipulatives 	<ul style="list-style-type: none"> Students create repeated and growing patterns using numbers and symbols.
2. Identify and locate missing numbers on a number line	<ul style="list-style-type: none"> You can use a number line to help you find a pattern. Determine if the order of numbers is ascending (getting larger in value) or descending (becoming smaller in value). Example: Find the missing number: 30, 23, __, 9 The order of numbers is going down or descending. The missing number is 16 since it is 7 more than the last number 9. 	<ul style="list-style-type: none"> Place a number line on the floor. Have students fill in the missing numbers on the number line. 	<ul style="list-style-type: none"> Harcourt Math Bk. 2 Teacher’s Edition pg. 5 www.ictgames.com/missingnumbers.html Number line Number cards 	<ul style="list-style-type: none"> Interactive missing number game: Students click and type in the missing number shown with a triangular symbol. www.ictgames.com/missingnumbers.html

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STRAND: PATTERNS, FUNCTIONS, & ALGEBRA
GRADE: 3**

Sub Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>3. Solve problems that involve pattern identification to complete patterns.</p>	<ul style="list-style-type: none"> • A pattern is a strategy that can be used to solve problems. • You can use the order of shapes in a design to identify a pattern to solve a problem. To find patterns you can use the following steps. <p>Step 1- Understand</p> <ul style="list-style-type: none"> - What are you asked to find? - What information will you use? <p>Step 2</p> <ul style="list-style-type: none"> - What strategy can you use to solve the problem? <p>Step 3</p> <ul style="list-style-type: none"> - How can you use the strategy to solve the problem? <p>Step 4</p> <ul style="list-style-type: none"> - How can you decide if your answer is right? 	<ul style="list-style-type: none"> • Have students work in small groups to find examples of patterns in the classroom. Suggest that they look for patterns in books, magazines, on clothing or on object such as pencil, vases, or artwork that is displayed in the room. • Students solve problems in groups. Example It's time for the Literacy parade. The third grade decides to march in a special formation this year. One student walks in the first row, two students walk in the second row, and three students walk in the third row. This pattern continues. <ul style="list-style-type: none"> a. If the whole third grade marches in 10 full rows, how many students are in third grade? b. Use numbers, words, tables, and/or pictures to explain how you know your answer is correct. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3, Teacher's Edition , pgs. 326 & 327 • Magazines • http://www.mathwire.com/problemsolving 	<ul style="list-style-type: none"> • Lesson Quiz <p>Examples:</p> <p>a. What will the next three shapes in the pattern be?</p> <p style="text-align: center;">○□▶○□▶...</p> <p>b. What are the next three numbers in the pattern? 14, 17, 20, 18, - - -</p>

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, & ALGEBRA
GRADE: 3

Sub Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>4. Compare expressions using =, >, and < (Continued).</p>	<ul style="list-style-type: none"> An equation is a number sentence that says two expressions are equal. e.g. $5 + 3 = 10 - 2$ $8 = 8$ Two sides of a number sentence can be equal or unequal. A symbol >, <, or = tells how the sides compare. <p>Example: $3 + 4 \bigcirc 2 + 7$ $7 < 9$</p> <ul style="list-style-type: none"> The symbol = means “is equal to”. In a number sentence, the symbol = tells that the value on the left is equal to the value on the right. <p>Example a) $9 + \underline{\hspace{2cm}} = 11$ b) $10 = 3 + \underline{\hspace{2cm}}$ c) $17 - \underline{\hspace{2cm}} = 9$</p>	<ul style="list-style-type: none"> Students complete equation puzzles where they match the equation with the correct response. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 pgs. 20-22 Edhelper.com 	<ul style="list-style-type: none"> Students complete expressions using =, <, and >.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, & ALGEBRA
GRADE: 3

Sub Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
4. Compare expressions using =, >, and < .	<ul style="list-style-type: none"> • An inequality is a number sentence that uses < or >. An inequality shows that two expressions are not equal. <p style="text-align: center;"> $5 + 6 > 10$ $11 > 10$ </p>			

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 3

Sub-goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

1. What strategies can I use to solve addition and subtraction problems?
2. How can I show how to solve a multiplication problem in different ways?
3. How can I use multiplication to help me with division?
4. How can I use division to help me with multiplication?
5. Why is it important to know how to add and subtract compound units?
6. Why do mental models help me remember?

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 3

Sub-goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Recall addition and subtraction facts through 20 within a time frame of 3 seconds each.	<ul style="list-style-type: none"> Addition means to add 2 or more numbers together to get a result. Addends are the numbers that are combined or added together. Sum is the answer to an addition problem. Students are to learn all the addition facts through 20 and be able to recall them within a period of 3 seconds each. Commutative property of addition e.g. $7 + 2 = 2 + 7$ Identity Property of Zero e.g. $7 + 0 = 0 + 7$ 	<p>Beat the Clock</p> <ul style="list-style-type: none"> Addition and subtraction facts through 20. Students are timed as they complete the worksheet to recall addition and subtraction facts. The student with the least time and the most correct is it the winner. (Aim: to complete each fact within the 3 second timeframe). 	<ul style="list-style-type: none"> Harcourt Math Bk. 2 Teacher’s Edition, pgs. 25 & 26 www.mathfourm.com www.mathonline.com www.kidsmath.com Clock Timer Flashcards 	<ul style="list-style-type: none"> Assign students to complete an online assessment of addition and subtraction facts www.mathfourm.com www.mathonline.com www.kidsmath.com or Harcourt Math CD Rom Carnival Countdown -.Snap clowns
2. Estimate sums and differences (Continued).	<ul style="list-style-type: none"> There are many estimation strategies. Rounding is a strategy that is useful for addition and subtraction. Estimating has value in real life situations and is useful when you don’t need to find an exact answer. To round numbers, determine the digit to be rounded. Look at the digit to its right. If it is 0-4, the digit in the rounding place stays the same. If it is 5 or more, the digit in the rounding place increases by 1. 	<ul style="list-style-type: none"> Have students write about a situation in their own lives when it is better to estimate than to find an exact answer. (Students might suggest estimating the amount of school supplies, such as paper and pencils that they will need for the school year.) 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teacher’s Edition pgs. 38 & 39; 54 & 55 Mathematics Plus Bk. 3 Teacher’s Edition pgs.70 & 71 	<ul style="list-style-type: none"> Lesson Quiz Students think of situations in which they or members of their families have used the words “about “, approximately, or “close to” in giving answer to questions about groups of people, things, or costs of several items in store. Students share their answers.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 3

Sub-goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Estimate sums and differences.	E.g. $\begin{array}{r} 88 \rightarrow 90 \\ + 91 \rightarrow + 90 \\ \hline 180 \end{array} = \begin{array}{r} 615 \rightarrow 600 \\ 167 \rightarrow 200 \\ \hline 400 \end{array}$ Remember estimate means to find the approximate value.			
3. Create and solve problems involving the addition and subtraction of money.	<ul style="list-style-type: none"> Adding and subtracting money amounts is similar to adding and subtracting whole numbers. You add to find the total price of more than one item. You subtract to find the change you will receive. When you add and subtract money, put the decimal point and the dollar signs in the correct places. (e.g. \$2.35) 	<ul style="list-style-type: none"> Have students write word problems with money amounts. Have them write one problem using addition and another using subtraction of money amounts. Have students exchange problems with a partner and solve. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3, Teacher's Edition, pgs. 88 & 89 	<ul style="list-style-type: none"> Students find the sums and differences using the activboard. $\begin{array}{r} (1) \$ 1.53 \\ + \$ 2.27 \\ \hline \end{array} \qquad \begin{array}{r} \$3.69 \\ - \$ 1.51 \\ \hline \end{array}$
4. Create and solve computational problems in addition using whole numbers up to 9 999 with and without regrouping (Continued).	Addition $\begin{array}{r} 7\ 523 \\ + 2\ 149 \\ \hline 9\ 672 \end{array}$ <ul style="list-style-type: none"> Step 1: Add the ones. 9 ones + 3 ones = 12 ones Regroup 12 ones = 1 ten 2 ones Step 2: Add the tens 2 tens + 4 tens = 6 tens 	<ul style="list-style-type: none"> In cooperative groups, students create addition problems using whole numbers up to 9 999. Problems are passed to other groups to solve. Students explain how they arrived at the answers. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 pgs. 40-49 	<ul style="list-style-type: none"> Students create and solve addition problems.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 3

Sub-goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations of addition, subtraction, division, and multiplication.

s OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
4. Create and solve computational problems in addition using whole numbers up to 9999 with and without regrouping.	<ul style="list-style-type: none"> • Step 3: Add the hundreds 5 hundreds + 1 hundreds = 6 hundreds • Step 4: Add thousands 7 thousands + 2 thousands = 9 thousands 			
5. Create and solve computational problems in subtraction using whole numbers up to 9999 with and without renaming.	<p>Subtraction $\begin{array}{r} 237 \\ - 162 \\ \hline 075 \end{array}$</p> <p>Step 1: Subtract the ones 7 ones - 2 ones = 5 ones</p> <p>Step 2: Subtract the tens 3 tens - 6 tens cannot be done so we have to regroup 1 hundred = 10 tens - 10 tens + 3 tens = 13 tens 13 tens - 6 tens = 7 tens</p> <p>Step 3: Subtract the hundreds 1 hundred - 1 hundred = 0 hundreds.</p>	<ul style="list-style-type: none"> • In cooperative groups, students create addition and subtraction problems using whole numbers up to 9 999. • Problems are passed to other groups to solve. • Students explain how they arrived at the answers. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3 pgs. 56-65 	<ul style="list-style-type: none"> • Students create and solve addition and subtraction problems.
6. Explain multiplication as repeated addition (Continued).	<ul style="list-style-type: none"> • Multiplication connects directly to addition only when equal groups are used. • Multiplying is a way to find how many in all when groups have the same number of items. 	<p>Snappy Sums</p> <ul style="list-style-type: none"> • Have partners use connecting cubes to show the groups below. For e.g. for 3 twos, the partner makes 3 cube trains, each consisting of 2 cubes. After making the trains, partners tell how many cubes in all and compare their totals. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3 Teacher's Edition, pgs. 116 & 117 • Mathematics Plus Bk. 3, pgs. 166 & 167 • Connecting Cubes 	<ul style="list-style-type: none"> • Students explain using examples how multiplication is seen as repeated addition

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 3

Sub-goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT										
6. Explain multiplication as repeated addition.	<p>e.g. $2 + 2 + 2 = 6$ $3 \times 2 = 6$ (answer)</p> <p>Number of groups Amounts in each group</p> <p>E.g.</p> $\begin{array}{r} 10 \\ \times 2 \\ \hline 20 \end{array}$ <ul style="list-style-type: none"> When multiplying a 2- digit number by a 1-digit number, think of the 2 digit number in terms of tens and ones. 	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;">1st partner</td> <td style="width: 50%; vertical-align: top;">2nd partner</td> </tr> <tr> <td>3 twos</td> <td>2 threes</td> </tr> <tr> <td>4 threes</td> <td>3 fours</td> </tr> <tr> <td>4 fives</td> <td>5 fours</td> </tr> <tr> <td>2 eights</td> <td>8 twos</td> </tr> </table>	1st partner	2nd partner	3 twos	2 threes	4 threes	3 fours	4 fives	5 fours	2 eights	8 twos		
1st partner	2nd partner													
3 twos	2 threes													
4 threes	3 fours													
4 fives	5 fours													
2 eights	8 twos													
7. Model multiplication using arrays.	<ul style="list-style-type: none"> An array shows objects in equal rows. e.g. 00000 00000 00000 00000 The counters show 4 rows of 5. Each row is a group. You can use addition to find the total. Multiplication can be used to find the total in an array. $\begin{array}{rcccl} 4 & \times & 5 & = & 20 \\ \swarrow & & \searrow & & \\ \text{number of rows} & & \text{number in each row} & & \end{array}$	<ul style="list-style-type: none"> Teacher places students in pairs. One child spins for the number of tiles in each row. The other student should spin to show the number of rows. Students arrange the tiles to form a rectangle to show the number of rows and the number of tiles in each row. Students state the shape they have made. They discover if there is another way to arrange the array. Teacher asks, “What happens if you turn the array side ways? How is this array like a multiplication fact?” 	<ul style="list-style-type: none"> www.athens.edu Spinner with numbers 1-4 16 coloured tiles Harcourt Math Bk. 3 pgs. 138-141 	<ul style="list-style-type: none"> Students use pegboards to model multiplication using arrays. Students create 4 number sentences from the arrays and explain the commutative property. 										

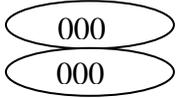
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 3**

Sub-goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
8. Identify and use multiplication and division facts through 9 x 9.	<ul style="list-style-type: none"> Teacher connects fact families and commutative property to multiplication and division facts. The NINE multiplication facts is the one less = nine method. Subtract one from the number you are multiplying by. Example 9 x 5 (One less than 5 is 4).The first number in the answer is 4. The two numbers that make up the answer will equal 9. So 4 + __ = 9 (5) .The last number in the answer is 5. 9 x 5 = 45 .One less than 5 is 4 (45) <p>The answer adds up to nine. 4 + 5 = 9</p>	<ul style="list-style-type: none"> Put students in groups and assign each group a multiplication table. Let the group work together to create a poster that illustrates a viable strategy that can be applied to find solutions to those facts. E.g. doubles. 	<ul style="list-style-type: none"> http://www.multiplication.com Harcourt Math Bk. 3 pgs. 222 & 518 	<ul style="list-style-type: none"> Journal Writing: Write at least three sentences containing the words double or doubling. Draw picture to represent one of the sentences. Share sentences and pictures.
9. Multiply numbers with at least 2 digits by 1 digits (be certain 0 is in different positions).	<ul style="list-style-type: none"> Multiply to find the value of ones and then the values of tens. <p>E.g 70</p> $\begin{array}{r} 70 \\ \times 4 \\ \hline 280 \end{array}$ <p>Step 1: Multiply the ones</p> <p>Step 2: Multiply the tens.</p>	<ul style="list-style-type: none"> Have students multiply 2 digit numbers. Ask them to solve the following problems. <p>a. If you blink 12 times a minute, how many times do you blink in 8 minutes?</p> <p>b. If your heartbeat 73 times a minute how many time does it beat in 5 minute.</p>	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teacher’s Edition, pgs. 488 & 489 	<ul style="list-style-type: none"> Activity sheet with multiplication problems.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 3**

Sub-goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
9. Multiply numbers with at least 2 digits by 1 digits (be certain 0 is in different positions). (Continued)		c. If for breakfast each day you eat 24 ounces of food, how many ounces of food will you eat for breakfast in a week?		
10. Create and solve multiplication problems	<ul style="list-style-type: none"> Some vocabulary words for multiplication are times, everyday, and at this rate. Example Daniel reads 25 words per minute. At this rate, how many words does he read in one hour? 	<ul style="list-style-type: none"> In cooperative groups, students create multiplication problems. Problems are passed to other groups to solve. Students explain how they arrived at the answers. 	<ul style="list-style-type: none"> http://www.mathstories.com 	<ul style="list-style-type: none"> Quiz: Problem Solving
11. Explore the meaning of division.	<ul style="list-style-type: none"> Division can help you find how many items are in each group and how many equal groups there are. Division can be modeled with counters. Division is the operation used to find out how many are in each equal group. The quotient is the answer to a division problem. e.g. $6 \div 3 = 2$  <p>6 counters grouped in threes give 2 groups.</p>	<ul style="list-style-type: none"> Have students use 12 counters to represent team members. Find the number of players if there are 2 teams, 3 teams and 6 teams. Have students discover the pattern using the counters and team members. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3, Teacher's Edition pgs. 184-185 	<ul style="list-style-type: none"> Write a poem, jingle or story about the meaning of division.

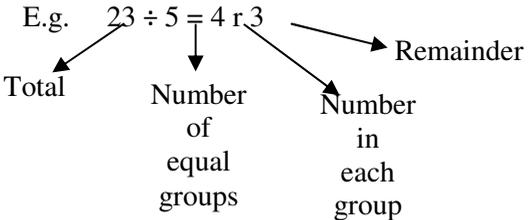
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 3**

Sub-goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
12. Explain the relationship between multiplication and division using word, pictures or concrete objects	<ul style="list-style-type: none"> • To find a quotient, use an array and count the number in each equal row. • Use a related multiplication fact to find a quotient. • Quotient is the answer of a division problem. • Multiplication and division are inverse operations. If $4 \times 3 = 12$ then $12 \div 3 = 4$ 	<ul style="list-style-type: none"> • Divide the class into two teams give one team the multiplication cards and the other team the division cards. • Allow each player to find their partner on the other team by finding their inverse operation. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3, Teacher's Edition, pgs. 188 - 193 	<ul style="list-style-type: none"> • Have students write the inverse operation for given operations. e.g. $4 \times 8 = 32$ $32 \div 8 = 4$
13. Model division as repeated subtraction.	<ul style="list-style-type: none"> • Repeated subtraction may be used to solve a division problem. When using repeated subtraction, start with the total and subtract equal groups until you reach 0. • Count the number of times you subtract to find the quotient. When using repeated subtraction to find a quotient, you are skip-counting backward. • Division may be written in two forms with a division house or as a division sentence. 	<ul style="list-style-type: none"> • Have each students use a number line to solve this problem: A bug started at 12 on the number line and made hops of 2 spaces each, until it gets to 0. • How many hops did the bug make? • Have students write 2 insect problems that involve a number line. Pairs of students exchange papers and solved each others problems. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3, Teacher's Edition, pgs. 186 & 187 • Mathematics Plus Bk. 3 Teacher's Edition pgs. 228 & 229 • Number line 	<ul style="list-style-type: none"> • Have students write in their mathematics journals. <ol style="list-style-type: none"> a. Why is division called repeated subtraction? b. Have students show examples in their journals.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 3**

Sub-goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
14. Multiply numbers up to 9 999 by a 1-digit number.	$\begin{array}{r} 2\ 605 \\ \times 8 \\ \hline 20\ 840 \end{array}$ <p>Step 1: Multiply the ones. 8 x 5 ones = 40 ones – Regroup</p> <p>Step 2: Multiply the tens. 8 x 0 tens = 0 tens Add the regrouped tens.</p> <p>Step 3: Multiply the hundreds. 8 x 6 hundreds = 48 hundreds-Regroup</p> <p>Step 4: Multiply the thousands 2 x 8 = 16 Add the regrouped hundreds. Use decimals as well.</p>	<ul style="list-style-type: none"> Students solve multiplication problems. 	<ul style="list-style-type: none"> enVisionMath Bk. 3 Harcourt Math Bk. 3 pgs. 524-533 	<ul style="list-style-type: none"> Answer questions related to the topic. Example: $\begin{array}{r} 4\ 231 \\ \times 4 \\ \hline \end{array} \qquad \begin{array}{r} 1\ 234 \\ \times 3 \\ \hline \end{array}$
15. Divide numbers up to 9999 by a 1-digit number including situations where there is a remainder	<ul style="list-style-type: none"> Division is an operation that is used to find how many equal groups or how many are in each group. <p>E.g. $23 \div 5 = 4\ r.3$</p>  <ul style="list-style-type: none"> The part that is left over when we divide is called the remainder. 	<p>Division Homerun</p> <ul style="list-style-type: none"> Class is divided into two teams. The teacher calls a division problem and the first student on line gives the answer. If he/she is correct, he/she moves to the first base. If answer is incorrect, he/she is knocked out. The game continues until there are three incorrect responses. When this occurs, the next team bats. 	<ul style="list-style-type: none"> enVisionMath Bk. 3 pg. 190 Flash cards Harcourt Math Bk. 3pgs. 304-307, 502-511 	<ul style="list-style-type: none"> Activity sheet with division with and without remainders.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 3**

Sub-goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
16. Add and subtract measurements in compound units.	<ul style="list-style-type: none"> • 100 cm = 1 m • Addition $\begin{array}{r} \text{m} \quad \text{cm} \\ 2 \quad 70 \\ + 3 \quad 45 \\ \hline 6 \quad 15 \end{array}$ <p>Step 1: Add the cm. $70 + 45 = 115$ 115 cm = 1 m 15 cm</p> <p>Step 2: Add m. $2 + 3 + 1 = 6$</p> • Subtraction $\begin{array}{r} \text{m} \quad \text{cm} \\ 2 \quad 25 \\ - 1 \quad 50 \\ \hline 0 \quad 75 \end{array}$ <p>Step 1: Subtract cm. Need to rename. Change 1 m and add to 25 cm $125 \text{ cm} - 50 \text{ cm} = 75 \text{ cm}$</p> <p>Step 2: Subtract m $1 - 1 = 0$</p> 	<ul style="list-style-type: none"> • In groups have students solve problems using compound units (linear and customary) <p>Example:</p> <p>a. How many centimeters must I cut from a rod 5.2 cm long to have 4.5 left?</p> <p>b. Joseph is 1m 25cm tall. James is 1 m 35 cm. How much taller is James?</p>	<ul style="list-style-type: none"> • Primary Maths for Caribbean Schools Bk. 3 pg.112 • http://www.rwc.uc.edu 	<ul style="list-style-type: none"> • Independent practice on solving problems. <p>Example:</p> <p>a. The school garden has rectangular plots each measuring 4m long and 3m wide. How far must you walk to go around one plot?</p>

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 3

Sub-goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
17. Multiply and divide tens, hundreds, and thousands by a 1-digit number.	<ul style="list-style-type: none"> • When we multiply by ten, every figure moves one place to the left. Ones become tens, tens become hundreds, and hundreds become thousands. The gap in the ones place is filled by a 0. • When we multiply by 100, every figure moves two places to the left. The gaps in the ones and tens columns are filled by 0. • When you divide a decimal number by 10, you move all the digits one place to the right. The number becomes ten times smaller. E.g. $350 \div 10 = 35$ 	<ul style="list-style-type: none"> • Students solve problems using multiplication and division strategies. 	<ul style="list-style-type: none"> • enVisionMath Bk.3 pg. 444 	<ul style="list-style-type: none"> • Complete problems. Example <ol style="list-style-type: none"> a. For the concert, the 64 members of the Royal Bahamas Police Force Band were divided equally into 4 different groups. How many band members were in each group?

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 3

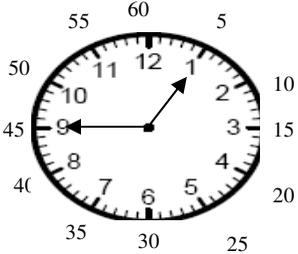
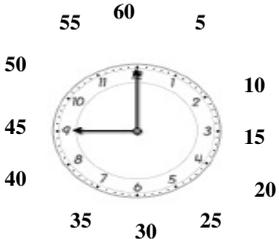
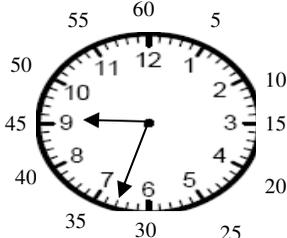
Sub-Goals 4: Make and use measurements of objectives, qualities, and relationships and determine acceptable levels of accuracy.

Essential Questions

1. Why is elapsed time important and how can it be used in everyday life?
2. How can one convert between units of time?
3. What types of problems are solved with measurement?
4. What are tools of measurement and how are they used?
5. How can you make change from a given amount of money?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 3**

Sub-Goals 4: Make and use measurements of objects, qualities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Tell time to the nearest five minutes (Continued).</p>	<ul style="list-style-type: none"> It takes 5 <u>minutes</u> for the <u>minute hand</u> to move from number to number.  <ul style="list-style-type: none"> Remember there are 60 minutes in one hour.  <ul style="list-style-type: none"> Remember there are 30 minutes in a half hour. 	<ul style="list-style-type: none"> Review skip counting by fives. Draw a series of 5 pointed stars on the board or have children flash their fingers as they count aloud to 60: 5, 10, 15, 25, 30, 35, 40, 45, 50, 55, and 60. Explain that there are 60 minutes in one hour. Direct children's attention to the classroom clock. Then have groups of 12 children form large circles. Practice going around the circle with each child adding 5 minutes to the time said before. The first child says "5 minutes". The next child says "10 minutes" and so on. The twelfth child says "60 minutes equals 1 hour". Repeat until everyone has had a turn. 	<ul style="list-style-type: none"> Harcourt Math Bk. 2 Teacher's Edition pgs. 125 & 126 	<ul style="list-style-type: none"> Display 9:35 on the classroom clock. Discuss and write how can you find how many minutes have passed since 9 O' clock? What time is it if the minute hand now moves to 9?

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 3

Sub-Goals 4: Make and use measurements of objects, qualities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Tell time to the nearest five minutes.	VOCABULARY <ul style="list-style-type: none"> • Minute- a unit of time equal to 60 seconds. • Minute hand – the longest hand on an analog clock; it designates minutes. • Hour- a unit of time equal to 60 minutes • Half hour- a unit of time equal to 30 minutes. 	<ul style="list-style-type: none"> • In cooperative groups, students create and report scenarios of a.m. and p.m. activities. • Play the game ‘Time for Bingo’. Download the bingo game board, instructions and materials for telling time to the nearest five minutes from. superteacherworksheets.com/time/clock 	<ul style="list-style-type: none"> • enVisionMath Bk 3 pg.392 • superteacherworksheets.com/time/clock. 	<ul style="list-style-type: none"> • Have students decide whether the time is a.m. or p.m. E.g. Would the time the bus arrives at school more likely be 8.30 a.m. or 8.30 p.m. • Would you be more likely to eat lunch at 12.20 am or 12.30 p.m.
2. Identify events taking the same amount of time, more time than, or less time than.	<ul style="list-style-type: none"> • We tell time in minutes, hours, days, weeks, months, and years. • Some events take the same amount of time, more time than, and less time than. 	<ul style="list-style-type: none"> • Model time relationships. • Create a list of events taking the <i>same amount of time, more time than or less time than</i> other events. Have students draw three columns. Label each the following: <i>same amount of time, more time than, and less time than</i>. Tell them to sort events into three categories. 	<ul style="list-style-type: none"> • Analogue clock • Calendar 	<ul style="list-style-type: none"> • Classify events taking the same amount of time, more time than, or less time than
2. Apply vocabulary associated with time using a.m., p.m., noon, or midnight (Continued).	<ul style="list-style-type: none"> • The hours between noon and midnight are p.m. hours. • A. M. stands for ante meridian meaning before noon. • P. M. stands post meridian meaning afternoon. • A. M. and P. M. start immediately after midday. Midnight and Noon (Midday) respectively. 	<ul style="list-style-type: none"> • Students match word to its meaning. • In groups, draw and write events that occur at specific times. For example, breakfast, lunch, and the like. 	<ul style="list-style-type: none"> • tf.nist.gov/general/misc.htm 	<ul style="list-style-type: none"> • Journal entry: Write to explain why it is incorrect to use the terms 12:00 a.m. and 12:00 p.m.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
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Sub-Goals 4: Make and use measurements of objects, qualities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>3. Apply vocabulary associated with time using a.m., p.m., noon, or midnight.</p>	<ul style="list-style-type: none"> • Use 12 noon and 12 midnight for clarity. Do not use the terms 12.00a.m. and 12.00 p.m. It is incorrect. • Noon is neither before or after noon; it is simply noon. Therefore, neither the "a.m." nor the "p.m." designation is correct. On the other hand, midnight is both 12 hours before noon and 12 hours after noon. Therefore, either 12 a.m. or 12 p.m. could work as a designation for midnight, but both would be ambiguous as to the date intended. • Everyday starts precisely at midnight and a.m. start immediately after that point in time. • To avoid ambiguity, airlines, railroads, and insurance companies use 12.01 a.m. for an event beginning the day and 11.59 p.m. for ending it. • The hours of the day between midnight and noon are a.m. hours. 			

SCOPE OF WORK
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Sub-Goals 4: Make and use measurements of objects, qualities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>4. Identify equivalent periods of time including relationships among days, months and years and hours, minutes and seconds.</p>	<p>Time Relationships</p> <ul style="list-style-type: none"> • There are 60 minutes in 1 hour. • There are 24 hours in a day. • There are 7 days in a week. • There are 28, 30 or 31 days in 1 month • There are 12 months in 1 year <p>There are 52 weeks in 1 year</p>	<ul style="list-style-type: none"> ▪ Name two time periods and have children tell which time period is longer. ▪ Help them see that a time period is made up of a number of time periods and have children tell which time period is shorter. • Have children use their clocks and calendars to model time relationships. How many days are in a week? • Ask children to point to and count each day on the calendar. (7 days) • How many hours does your birthday last? (24 hours) • Have children explain their reasoning. (Because my birthday is one day long.) 	<ul style="list-style-type: none"> • www.eduplace.com 	<ul style="list-style-type: none"> • Quiz <p>Example: How many minutes are in</p> <ol style="list-style-type: none"> a. 1 hour b. 1 and a half hours <p>2. How many months are in</p> <ol style="list-style-type: none"> a. 1 year b. half a year
<p>5. Use a calendar to identify specific dates (Continued).</p>	<ul style="list-style-type: none"> • Calendars are tables that show the days, weeks, and months of a year in order. • Remember <ul style="list-style-type: none"> 7 days = 1 week 12 months = 1 year 	<ul style="list-style-type: none"> • Give a current calendar to each group. Ask each student to find his or her birthday. i. On what day of the week does your birthday fall this year? Write the date including the day. 	<ul style="list-style-type: none"> • www.eduplace.com • calendars 	<ul style="list-style-type: none"> • Highlight specific dates on calendars and write the ordinal and cardinal numbers.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 3

Sub-Goals 4: Make and use measurements of objects, qualities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT										
5. Use a calendar to identify specific dates .	<ul style="list-style-type: none"> • The calendar shows the order of dates so, use ordinal numbers to name dates. <table style="margin-left: 20px; border: none;"> <tr> <td style="padding-right: 20px;">Write</td> <td>Read</td> </tr> <tr> <td>June 1</td> <td>June first</td> </tr> <tr> <td>March 4</td> <td>March fourth</td> </tr> <tr> <td>May 3</td> <td>May third</td> </tr> <tr> <td>October 2</td> <td>October second</td> </tr> </table> 	Write	Read	June 1	June first	March 4	March fourth	May 3	May third	October 2	October second	<p>Example:</p> <ul style="list-style-type: none"> a. Thursday, May 24th b. Does your birthday fall on the same day of the week each year? <ul style="list-style-type: none"> • Have a student report to the class who will have the next birthday and who had the most recent birthday. 		
Write	Read													
June 1	June first													
March 4	March fourth													
May 3	May third													
October 2	October second													
6. Calculate elapsed time to the day with calendars and to the hour with a clock.	<ul style="list-style-type: none"> • Elapsed time is the total amount of time that passes from the starting time to the ending time. • Ensure that students identify the beginning and ending times correctly. • Find the starting time. Count the hours and minutes to find elapsed time after identifying ending time. 	<ul style="list-style-type: none"> • Have students label a calendar month beginning with the first Monday. • Have groups answer questions about the calendar. E.g. what is the date of the second Thursday in March? Suppose you have ball practice on Saturdays. How many practice days do you have in March? • Have students use clocks to find elapsed time. Ask questions. E.g., Sean and Kiara went to the carnival at 3 o'clock in the afternoon. They left at 11 o'clock in the evening. How long did they stay at the carnival? 	<ul style="list-style-type: none"> • enVision Math Bk. 3 pg.400 	<ul style="list-style-type: none"> • Have students use a schedule to calculate elapsed time. 										

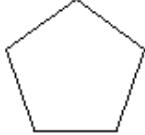
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 3

Sub-Goals 4: Make and use measurements of objects, qualities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
7. Convert between Units of time	<ul style="list-style-type: none"> To convert weeks to days, multiply the number of weeks by 7. E.g. 4 week = $4 \times 7 = 28$ days To convert days to hours, multiply the number of days by 24. E.g. 7 days = $7 \times 24 = 168$ hours. To convert hours to minutes, multiply the number of hours by 60. For example, 6 hours = 144 minutes. 	<ul style="list-style-type: none"> Riddles Example: I am known as four weeks. a. What is my name? Answer: 28 days b. I am 5 weeks. What is my name in days? Give students practice converting units of time: E.g. 730 days = ___yrs; 3 yrs. = ___ days. 	<ul style="list-style-type: none"> www.lxl.com www.9a9math.com 	<ul style="list-style-type: none"> Explain why 8 weeks is equivalent to 56 days and write how many months are in 8 weeks.
8. Read and record temperatures on a thermometer and interpret the readings.	<ul style="list-style-type: none"> A thermometer measures temperature. Degrees ($^{\circ}$) of Celsius (C) and Fahrenheit (F) are units of temperature. Water freezes at 32°F or 0°C. Water boils at 212°F or 100°C. Room temperature is 68°F or 20°C. Degrees Fahrenheit is the customary unit of temperature. Degrees Celsius is the metric units of temperature. 	<p>Measuring Temperature:</p> <ul style="list-style-type: none"> Estimate the temperature outside the classroom in degrees Celsius and in degrees Fahrenheit. Record your estimates. Measure the temperature outside the classroom using thermometers. Record the differences between your estimates and the actual measurements. 	<ul style="list-style-type: none"> Celsius and Fahrenheit thermometer. 	<ul style="list-style-type: none"> Use data from a chart where students have measured temperatures at the same time every day for a week in the Celsius and Fahrenheit. Students answer questions from the chart. Examples: a. Which day shows the highest temperature? b. Which day shows the lowest temperature ?

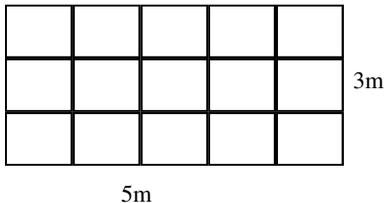
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 3**

Sub-Goals 4: Make and use measurements of objects, qualities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>9. Estimate and measure length in metres, decimeters, centimetres, and millimetres.</p>	<ul style="list-style-type: none"> • In the metric system, centimetre (cm), decimetre (dm), meter (m) and millimetres are used to measure length. • A centimetre is about the width of your index finger. • A decimetre is about the width of an adult’s hand. • Your armspan is about 1 meter long. • A millimetre is about the thickness of a coin. (penny) 	<ul style="list-style-type: none"> • Have each student make a simple drawing that includes 4 line segments of different lengths (5cm- 15 cm), as well as some curved lines. <ol style="list-style-type: none"> a. Pairs of students measure the line segments, record the lengths, and discuss the results with their partners. • Have students draw lines according to the length provided: E.g. Draw the following lines: 3.9 cm, 8 cm, 4 cm, etc. 	<ul style="list-style-type: none"> • Harcourt Math Bk.3 Teacher’s Edition pgs. 330 & 331 • Centimeter rulers 	<ul style="list-style-type: none"> • Discuss: Why would it be better to measure the length of a chalkboard in meters rather than in centimeters? • Write: Why is it important to have more than one unit of measure? • Lesson Quiz Choose the unit you would use to measure each. Write cm, m or mm. <ol style="list-style-type: none"> a. The length of a basketball court. b. The thickness of a nickel. c. The length of an eraser d. The length of a notebook.
<p>10. Estimate and find the perimeter of polygons using standard and non standard measurements (Continued).</p>	<ul style="list-style-type: none"> • The distance around a figure is called its perimeter. • To determine the perimeter of a shape by measurement first you need to measure each side of the shape and then add all their measurements together. • A polygon is a closed plane figure whose sides and angles are equal. <div style="text-align: center;">  </div> <p>To find the perimeter of a regular polygon, measure one side and then multiply the length of the side by the number of sides.</p>	<ul style="list-style-type: none"> • Ten Squares Have students draw as many different shapes as possible that have a perimeter of 10 units. • Teach children the following memory prompt: How about P for perimeter, P for post. Fence posts will go all the way around the perimeter. • Have students point out objects and buildings in the community that resemble polygons. Have them draw some of these objects/buildings, label them and find the perimeter. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 2 Teacher’s Edition pgs. 277 & 278 • Mathematics Plus Bk. 3, pgs. 298 & 299 • Graph paper 1cm. 	<ul style="list-style-type: none"> • Discuss and write how to find the perimeter of a plane figure. Use diagrams to help you.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
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Sub-Goals 4: Make and use measurements of objects, qualities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
10. Estimate and find the perimeter of polygons using standard and non standard measurements.	Pentagon = 5 equal-sided polygon Perimeter = 5 x length of side			
11. Estimate and find area of shapes using non-standard and standard measurements.	<ul style="list-style-type: none"> The area of a figure is the number of square units needed to cover its surface. Count the square units  <p style="text-align: center;">The area is 15 square cm.</p>	<p>Building understanding.</p> <ul style="list-style-type: none"> Cover a book using counters. <ul style="list-style-type: none"> About how many do you think you will need? How many counters did you need? Is the book covered completely? Use square tiles or squares of paper to cover a book with squares. Students answer the following questions. <ul style="list-style-type: none"> Estimate the number of squares you will need? How many squares did you need? Is the book covered completely? 	<ul style="list-style-type: none"> Mathematics Plus Bk. 3 Teacher's Edition pgs. 300 & 301 Trundle Wheel 	<ul style="list-style-type: none"> Ask students to explain how 2 differently shaped figures can have the same area. (The area of 2 differently shaped figures can be the same because the area is just arranged in different ways).
12. Estimate and measure capacity using litres, and milliliters	<ul style="list-style-type: none"> Capacity can be measured by using metric units such as the millilitre (ml) and litre (L). A medicine dropper holds about 1ml. A water bottle holds about 1L. A water glass holds about 250ml. 	<ul style="list-style-type: none"> Challenge students to identify metric measurements of capacity. Have them make a list of containers that might be found in their homes. <ul style="list-style-type: none"> Next to each item, students should indicate whether the label on the container would show the measurement in millilitres or litres. Encourage students to share and compare their lists. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teacher's Edition, pgs. 378 & 379 	<ul style="list-style-type: none"> Discuss: What is the relationship of millilitres to litres? Choose the unit you would use to measure each. Write L or ml. <ul style="list-style-type: none"> A tank of gasoline A bottle of syrup A jug of laundry soap.
13. Estimate and measure mass in grams and kilograms (Continued).	<ul style="list-style-type: none"> The gram (g) and the kilogram (kg) are metric units for measuring mass. 	<ul style="list-style-type: none"> Estimate and measure objects. 	<ul style="list-style-type: none"> Harcourt Math Bk.3 Teacher's Edition, pgs. 380 & 381 	<ul style="list-style-type: none"> Discuss: Brainstorm a list of objects that have a mass of about 1 gram and about 1 kilogram.

SCOPE OF WORK
PRIMARYSCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 3

Sub-Goals 4: Make and use measurements of objects, qualities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT									
13. Estimate and measure mass in grams and kilograms.	<ul style="list-style-type: none"> A paper clip has a mass of about 1 gram. A large book has a mass of about 1 kilogram. 	<ul style="list-style-type: none"> Have pairs of students choose five objects; estimate the weights in g or kg and then use the balance scales to determine the actual weights. Students should record their findings on a chart. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="background-color: #cccccc;">Objects</th> <th style="background-color: #cccccc;">Estimated Weight</th> <th style="background-color: #cccccc;">Actual Weight</th> </tr> </thead> <tbody> <tr> <td style="height: 20px;"></td> <td></td> <td></td> </tr> </tbody> </table>	Objects	Estimated Weight	Actual Weight				<ul style="list-style-type: none"> Mathematics Plus Bk. 3 pgs.336 & 337 Balances Scales Grams and kilogram weights 	<ul style="list-style-type: none"> If a book has a mass of 500 grams, how many books of this size will you need to have a mass of one kilogram? Explain. 			
Objects	Estimated Weight	Actual Weight											
14. Convert units within systems using multiplication (Continued)..	<ul style="list-style-type: none"> To convert within the metric units, multiply or divide by 10, 100 or 1000. Multiply to change larger units to smaller units. E.g. 7cm = <u>70 mm</u> $7 \times 10 =$ $4m = \underline{400} \text{ cm}$ $4 \times 100 = 400$ Converting within customary units, multiply to change larger units to smaller units. 12 inches = 1 foot 3 feet = 1 yard 4 quarts = 1 gallon 2 pints = 1 quart E.g. 3 quarts = 6pts Each quart equals 2 pints = $3 \times 2 = 6$ 	<ul style="list-style-type: none"> Have students collect objects such as detergent bottles or food boxes. Allow them to use the outlined measurements and convert to other units. 	<ul style="list-style-type: none"> enVisionMath Bk. 3 pgs.338-354 	<ul style="list-style-type: none"> Create a chart to show equivalent measures using different units. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Item</th> <th>Measurement</th> <th>Conversion</th> </tr> </thead> <tbody> <tr> <td>Cereal</td> <td>5 g</td> <td>_____mg</td> </tr> <tr> <td>Cloth</td> <td>5 yds.</td> <td>_____ft</td> </tr> </tbody> </table>	Item	Measurement	Conversion	Cereal	5 g	_____mg	Cloth	5 yds.	_____ft
Item	Measurement	Conversion											
Cereal	5 g	_____mg											
Cloth	5 yds.	_____ft											

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 3

Sub-Goals 4: Make and use measurements of objects, qualities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
14. Convert units within systems using multiplication.	<ul style="list-style-type: none"> How many meters are in 5 kilometers? Think 1km = 1000m 2km = 2000 5km = 5 x 1000 = <u>5000</u> 			
15. Make change for purchases \$20.00 or less.	<ul style="list-style-type: none"> Change is the difference between the price of an item and the amount you give the clerk. The clerk will give back change. Example: if an item cost .47¢ and you give the clerk .50¢, you will receive .03¢ change. Counting on is one way to make sure you get the correct amount of change when you buy something. 	<ul style="list-style-type: none"> Divide the class into 4 or 5 groups. Allow each group to sell different items (e.g. one group sells toys, one group food, one group DVD's or CD's; one group games etc.). Base items on students' interest. Allow students at different times to go to each group and make a purchase. Make sure items do not cost more than \$5.00. This activity can be extended where students set up booths and have other students from other classes or grades come to make purchases. 	<ul style="list-style-type: none"> Harcourt Math Bk. 2 Teacher's Edition, pgs. 117 & 118. Harcourt Math Teacher's Edition Grade 3 pgs. 86 & 87, www.kidsmath.com 	<p>Discuss:</p> <ul style="list-style-type: none"> How can the cashier count out the change when you pay with \$5.00 for a \$2.55 item? <p>Write:</p> <ul style="list-style-type: none"> Using as few coins as possible, make change from a \$5.00 bill for groceries that cost \$4.77. Explain how you found your answer.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 3**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusion about points, lines, planes, and space.

Essential Questions

1. What are the properties of shapes?
2. How are solid figures different from plane figures?
3. How can I use plane shapes to help me identify different geometric solids?
4. What strategies can be used to verify symmetry?
5. What happens when you change a shapes position and orientation (slides, flips, and turns)?
6. How is the world of geometry connected to the world of numbers?

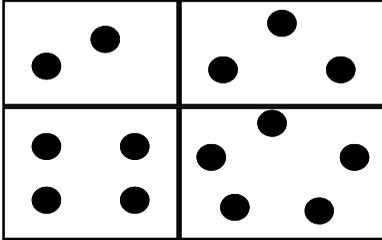
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 3**

Sub-Goal 5: Use geometric methods to analyze, categorize and draw conclusion about points, lines, planes and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Classify common shapes (plane and solid) and explain their properties in simple terms (Continued).	<ul style="list-style-type: none"> • A plane shape is a geometric shape that has no thickness. It lies in one plane. • Solid figures have three dimensions. • Circles, squares, triangles, rectangles and ovals are plane figures. • Sphere is a solid figure whose curved surface is the same distance from the center at all points. • Cone is a solid pointed figure that has a flat, round base. • Cylinder is a solid object with two identical flat circular ends and one curved side. • Cube is a three dimensional figure with 6 congruent square faces • Circle is a flat, round closed plane shape. All points on the circle are the same distance from the center point. • Square is a rectangle with all 4 sides of equal length. 	<p>Who am I?</p> <ul style="list-style-type: none"> • Put out three or more objects (such as a ball, a party hat, and a box). Describe one of them (it is round all over, it is flat on the bottom, it sides are all flat) and have the children guess which object you are describing. <p>How many sides?</p> <ul style="list-style-type: none"> • This activity uses pattern blocks. If you do not have pattern blocks you can use other shapes or cut shapes with different number of sides from construction paper. Each child needs only one shape for this activity. • Call a number and ask children who have a shape with that number of sides to stand. (Be sure to call numbers such as two and seven, to which no one will stand). Then have a search for all different shapes that have three sides, four sides, five sides, six sides, and zero sides (the circle). 	<ul style="list-style-type: none"> • Harcourt Math Bk. 2, Teacher's Edition, pgs. 255 – 260 • Harcourt Math Bk. 3, Teacher's Edition, pgs.294 – 295 • Helping Children Learn Mathematics, pgs. 222- 230 • Geometric shapes 	<ul style="list-style-type: none"> • Discuss and write Display a solid figure, and have children to draw the plane shapes they could trace from the faces of that solid figure. Students then write the properties of the shapes.

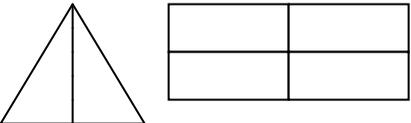
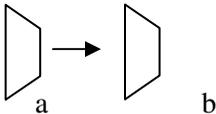
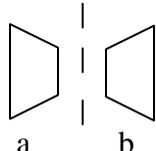
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 3**

Sub-Goal 5: Use geometric methods to analyze, categorize and draw conclusion about points, lines, planes and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Classify common shapes (plane and solid) and explain their properties in simple terms.</p>	<ul style="list-style-type: none"> • Triangle is a closed plane shape with 3 sides and 3 corners. • Rectangle is a closed plane shape with 4 sides and 4 square corners. • Oval is a closed plane shape that looks like a stretch circle. • Side is a straight part of a shape • Corner is the place where 2 or more edges meet. 			
<p>2. Identify and draw points, lines, and line segments using rulers and straight edges.</p>	<ul style="list-style-type: none"> • A point is an exact location or position  A and B are points on a line. • A line is straight. It continues in both directions. It does not end.  • A line segment is straight. It is the part of a line between two points, called end points  • Use a ruler or an object with a straight edge to draw a line. 	<p>How many segments?</p> <ul style="list-style-type: none"> • Have students complete the following by drawing as many line segments as possible between the points in each example.  <ul style="list-style-type: none"> • Have students draw lines of various length. For example 5 cm, 10 cm, 2 ins, 4 ins. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3 Teacher's Edition. pg. 300 • Mathematics Plus Bk.3 Teacher's Edition, pg. 288 	<ul style="list-style-type: none"> • Have students explain each term point, line, line segment in their mathematics journals.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 3**

Sub-Goal 5: Use geometric methods to analyze, categorize and draw conclusion about points, lines, planes and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Identify lines of symmetry in familiar shapes	<ul style="list-style-type: none"> An imaginary line that divides a figure in half is called the line of symmetry. If you fold a figure along a line of symmetry, both sides match. 	<ul style="list-style-type: none"> Student folds a sheet of paper in half and make a simple drawing on only one side of the fold. Partners exchange papers and try to complete the drawing on the other side of the paper, using the fold as a line of symmetry. 	<ul style="list-style-type: none"> Harcourt Math Bk. 2 Teacher's Edition, pgs. 245 – 246 Harcourt Math Bk. 3 Teacher's Edition, pgs. 334 – 335 Mathematics Plus Bk. 3, pg. 292 Mira 	<p>Discuss:</p> <ul style="list-style-type: none"> Describe lines of symmetry for the figure below.  <p>Write</p> <ul style="list-style-type: none"> What strategy could you use to locate the lines of symmetry in a figure?
4. Explore slides, flips, and turns (Continued).	<ul style="list-style-type: none"> Slide is a movement of a figure to a new position without turning or flipping it. <p>e.g. slide</p>  <ul style="list-style-type: none"> Flip is a movement that involves flipping a figure across an imaginary line. To flip a shape is to reflect it over a line 	<ul style="list-style-type: none"> Students' model the motions slide, flip and turn. Have students place an index card on the left side of their desks and then slide it to the right side. <ul style="list-style-type: none"> Ask: What has changed? (the location) Next tell students to place the card down and turn it over. <ul style="list-style-type: none"> Ask: What has changed? (Now I can see the reverse or other side) 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teacher's Edition, pgs. 249 - 252 Harcourt Math Bk. 3 Teacher's Edition, pgs. 338 – 339 Index cards 	<p>Discuss and write</p> <ul style="list-style-type: none"> What does it mean to flip, turn, and slide an object? Have students use pattern blocks or other simple objects to demonstrate slide, flip and turn.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 3**

Sub-Goal 5: Use geometric methods to analyze, categorize and draw conclusion about points, lines, planes and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>4. Explore slides, flips, and turns.</p>	<ul style="list-style-type: none"> • Turn: A move that involves rotating a figure turn 	<p>c. Have students place the card with the long side running from top to bottom in the middle of the desk and move it so that the long side is going from side to side on the desk.</p> <p>d. Ask: what has changed? Explain. It is pointing in a different direction). Check students work</p>		

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 3

Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability

Essential Questions

1. What kinds of questions can be answered using different data displays?
2. What are the parts of a graph?
3. What predictions can you make based on data given?
4. What is the benefit of charts, tables, and graphs in our daily lives?
5. How is probability used to predict outcomes in problem-solving?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 3**

Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Collect, record and interpret data on horizontal and vertical bar graphs</p>	<ul style="list-style-type: none"> • Data: Information collected about people or things. • Tally Table: A chart used to summarize the number of time items occur in a set of data. • Frequency Table: A table that uses numbers to record data. • Bar graph: A kind of graph that uses rectangular bars to show information. The bar can be vertical or horizontal. • Horizontal bar graph: A graph with bars going across from left to right. • Vertical bar graph: A graph with bars going up from the bottom. • Scale: The numbers on a bar graph that helps you read the number each bar shows. 	<ul style="list-style-type: none"> • Have students conduct a survey of about 30 people finding out their favorite color, sports or TV channel. <ul style="list-style-type: none"> a. Allow students to collect this data using a tally sheet. b. Using their tally sheets, have students create a frequency table. • Have students create a bar graph of the birthdays of their classmates. Also, have them write questions pertaining to the graph that the other students or teachers in the school can answer. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3 Teacher's Edition pgs. 238-255 • Behumane The Bahamas Humane Society Resource Manual 	<ul style="list-style-type: none"> • Discuss how horizontal and vertical bar graphs alike and different? • Complete Survey 2.2.1 (Top Ten Pets) in Behumane The Bahamas Humane Society.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY**

GRADE: 3

Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Draw graphs to include title, label and a key where needed.	<ul style="list-style-type: none"> • A graph is a way of organizing and displaying data. • All graphs include a title and labels • Some graphs have a key. • There are different types of graphs. Pictorial graphs uses pictures to stand for numbers and it must always have a key to tell you how much each picture represents. • A bar graph uses bars that are usually horizontal or vertical. The bars are used to show numbers. • The bars in bar graphs do not touch. If bars touch, it is a histogram. 	<ul style="list-style-type: none"> • Have students work in groups of four to make their graphs from a survey they have conducted. • Remind students to include title, labels, and a key where needed. • Give groups of students a bag of M & Ms or Skittles. Tell them to count the number of each color. Have them enter the numbers on a graph. Remind them to include the title and labels. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3 Teacher Edition pgs. 256 & 257 	<ul style="list-style-type: none"> • Discussion What are the important parts of a graph? • Write/Explain how a bar graphs and a pictographs are alike and how they are different.
3. Solve questions related to data representation, including finding the range and mode.	<ul style="list-style-type: none"> • Range: The difference between the highest and lowest values in the set. Example: { 35, 40, 80, 107, 225} Range $225 - 35 = 190$ • Mode: The most frequent number found in a collection of data 	<ul style="list-style-type: none"> • In groups, students list their ages and find the range and mode of the ages. • Find the range and mode of data from graphs. 	<ul style="list-style-type: none"> • homeschool.com • edhelper.com • Harcourt Math Bk. 3 pg. 258 	<ul style="list-style-type: none"> • Find the range and mode of given data.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 3**

Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
4. Analyze graphs, draw conclusions, and make predictions.	<ul style="list-style-type: none"> To analyze data you can look at the mean, mode, range to make conclusions. Conclusion is the result or outcome of a development. 	<ul style="list-style-type: none"> Students create graph on their favorite subjects. They analyze, make predictions, and draw conclusions from the data. Example a. Why do you think more students like Social Studies than Science? b. What is the range of the two most favoured subjects? 	<ul style="list-style-type: none"> www.harcourtschool.com helpingwithmath.com Harcourt Math Bk. 3 pgs. 280 & 281 	<ul style="list-style-type: none"> Analyze, draw conclusions, and make predictions based on information displayed on a graph.
5. Apply the terms possible, impossible, always, sometimes, never, and no to everyday situations	<ul style="list-style-type: none"> Event: Something that happens Certain: Describes an event that will always happen. Possible: Something that has a chance of happening. Impossible: Describes an event that will never happen 	<ul style="list-style-type: none"> Label a two column chart “Possible” and “Impossible”. a. Students describe events that happen everyday which are placed in the “Possible” column b. Then ask students to tell things that could never happen to them. For example “arriving at school in a space ships.” 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teacher’s Edition pgs. 270 & 271 	<ul style="list-style-type: none"> Discussion If you use a spinner with three equal parts that are orange, red and yellow, what is a possible (certain) event? An impossible event. Write: Describe two events that are certain to happen in the classroom and two events that are impossible.

Primary School Mathematics

Problems of the Day

Grade 1

PROBLEMS OF THE DAY: GRADE 1

Instructions: The following can be read aloud or written and discussed with students.

▲	1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	---	----	----	----

1. Begin at the ▲. Take 8 hops forward. Take 2 hops back. Take 6 hops forward. Where did you stop?

Answer: 12

2. **Tami's** birthday is on **February 17th**. February 16th is a Friday this year. On which day of the week is Tami's birthday? How do you know?

Answer: Saturday reasoning should include: Saturday is after Friday, 17 is one more than 16

3. **Christopher** has 10¢ . What are all the different coins he can have?

Answer: (5¢) (5¢) or (5¢) (1¢) (1¢) (1¢) (1¢) (1¢)

4. Asia has 1 five cent and 3 one cent pieces in her bag. She found 2 more one cents. Now how much money does she have?

Answer: 10¢

5. Andrew divides an orange in half. Can he give equal parts to three of his friends? Why?

Answer: no, accept reasonable answers

Alternatives

Change instructions.

Use students name in your class and actual birth dates

Use students name in your class and change money amounts

Use students name in your class and change money amounts

Use other common foods.

6. Shantell has 6 circle stickers and 3 triangle stickers. Show one pattern she could make that would use all her stickers.

Change type of stickers and amount.

Answer: ▲●●●▲●●●▲ or ●●▲●●▲●●▲

7. David drew a robot. He used circles, rectangles, squares, and triangles in his drawing. Show how you would draw a robot using these shapes.

Give students precut shapes to create their pictures.

Answer: accept all reasonable pictures.

8. A square table has 1 chair on each side. How many people can sit at the table?

Answer: 4

9. Destiny cuts a square sandwich to make two triangles. Draw a picture to show how she did this.

Use students name and change to rectangles

Answer:  or 

10. A **dozen** is another word for 12. Would a dozen mangoes be enough to give each child in our class 1 each? How many more mangoes would we need?

Answer: No, answers will vary

11. Tamika dropped her set of number cards, which cards did she lose?

Show number cards 0-10 with two cards missing (alternating the numbers)

Answer: numbers will vary based on the two numbers left out

12. It takes 10 points to win a game. Mark has 9 points. If he gets another point, will he win?

Answer: Yes

13. Tamara has five sugar apples. Does she have enough to give one to each to her four friends and keep one for herself?

Exchange fruit and number of children.

Answer: Yes

14. Keith lost three marbles. Isaiah lost two more than Keith. How many marbles has Isaiah lost?

Change the toy and number amounts

Answer: 5 marbles

15. Use only the numbers in the squares. Show all the 2-digit numbers you can make.

4	3	9
---	---	---

Change the digits in the squares

Answer: 43, 49, 34, 39, 94, 93

16. Write the next number in the pattern

a) 10, 20, 30, _____

b) 15, 25, 35, _____

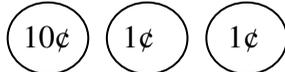
c) 90, 80, 70, _____

Change the number patterns.

Answer: a) 40 b) 45 c) 60

17. I have three coins worth 12¢. What are they? Draw a picture to show your answer.

Change the money amount

Answer: 

18. Put these numbers in order from least to greatest.

- a) 17, 56, 21, 38, 71
- b) 45, 53, 28 81, 38

Answer: a) 17, 21, 38, 56, 71 b) 28, 38, 45, 53, 81

19. There are 13 girls with Baby Alive dolls. 24 girls also have Brats dolls. How many girls have dolls altogether?

Answer: 37

20. What number does not belong in each group? Why?

A:

35	38	27	36	34
----	----	----	----	----

B:

46	45	48	69	43	49
----	----	----	----	----	----

Answers: a) 27 b) 69 accept all reasonable answers

21. One side of a square is 2 paper clips long. How many paperclips would you need to go around the whole square? Why?

Answer: 8 paper clips accept all reasonable answers

22. Which figure does not belong? Why?



Answer: **cube** it's a solid shape

Create varying sets of four numbers.
Instructions can change to ordering from greatest to least.

Change toys with gender and amount of students.

Change numbers

Change object and amount

23. Write the missing signs.

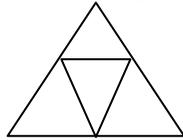
a) $3 \square 7 = 10$ _____

b) $4 \square 3 = 1$ _____

c) $2 \square 6 = 8$ _____

Answer: a) + b) - c) +

24. How many triangles can you count?



Answer: 5

25. Draw the next face in this pattern.



Answer: 😊

26. Which clock does not belong? Why?



A



B



C

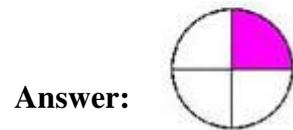
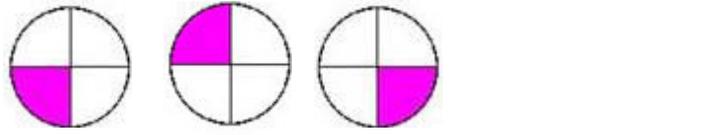


D

Answer: C accept reasonable answers

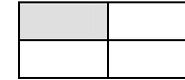
Alternate between digital and analog clocks showing different time sets.

27. Draw the next shape for this pattern.



Use various shape fraction patterns.

Ex:

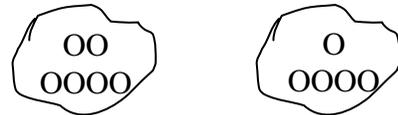


28. Kenva has 6 ju-ju plums. Does she have enough to give one to each of her four friends and keep one for herself?

Answer: Yes

29. Sheena has 6 sea grapes in one bag and 5 sea grapes in another. How many sea grapes does she have in all? Draw a picture to show your answer.

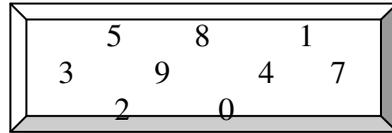
Answer: 11



30. A bookcase has three shelves. There is one toy on each shelf. The kite is on the top shelf, and the doll is under the ball. What is on the middle shelf? Draw a picture to show your answer.

Answer: The ball

31. Which number is missing from the picture?



Answer: 6

32. Which number is the mystery number?

1	2	3	4	5
3	4	5	4	5
<u>-0</u>	<u>-3</u>	<u>-0</u>	<u>-1</u>	<u>-1</u>

Solve each problem. The number that is not an answer is the mystery number.

Answer: 2

33. Solve the riddle.

Add me to 3 to get 4.

Subtract me from 5 to get 4 again.

What number am I?

Answer: 1

Use different number sets in tens from 1-100

Change numbers and operation.

Change numbers.

34. Draw a picture story about one of these problems.

$10 - 3 = \underline{\quad}$

$9 - 4 = \underline{\quad}$

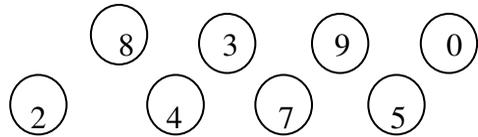
$$\begin{array}{r} 6 \\ -0 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ -3 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ -2 \\ \hline \end{array}$$

Answers: 7, 5 ; 6, 5, 5 pictures will vary

35. These numbers are lost. Write them where they belong.



$10, 9, \underline{\quad}$

$4, \underline{\quad}, 2$

$2, 1, \underline{\quad}$

$9, 8, \underline{\quad}$

$5, \underline{\quad}, 3$

$10, \underline{\quad}, 8$

$7, 6, \underline{\quad}$

$\underline{\quad}, 1, 0$

Answer: 8, 3, 0; 7, 4, 9; 5, 2

36. Acklins is 223 miles south east of New Providence. Crooked Island is 250 miles south east of New Providence. Which island is closer to New Providence.?

Answer: Acklins

Change numbers and operation.

Change numbers and patterns.
Ex: count in fives, twos, tens, in ascending or descending

Change Islands and use local settlements.

37. The Students at Mangrove Bush Primary had a read-a-thon in September. Use the graph to answer the following questions about the amount of books read by the students in this school.

Change picture and number amount.
Change graph representation.

Grade	Number of books read by students in September
Grade 1	☺ ☺ ☺ ☺
Grade 2	☺ ☺
Grade 3	☺
Grade 4	☺ ☺
Grade 5	☺ ☺ ☺
Grade 6	☺ ☺

Key: ☺ =2

- How many students read books in grade 5 ? _____
- Which grade read the most books? _____
- Which three grades read the same amount of books? _____

Answers: 6; 1; grades 2, 4, and 6

38. Cat Island Air made three flights on Friday for the Cat Island rake and Scrape Festival. The first flight was at 12:00, the second flight was at 1:00pm. What time was the third flight? Why?

Use analog clocks to assist with this.

Answer: 2:00 the flights were 1 hour apart

Change island and event along with
airline or mail boat.

39. Think about the Bahamian flag to answer the following questions.

- a. How many colors are in the flag? _____
- b. The color black is in what shape? _____
- c. Is there a pattern in our flag? What is it? _____

Answers: a. 3; b. triangle c. yes, *accept colour identification if stated (blue yellow blue) aquamarine, gold, aquamarine*

40. One side of a square is 10 paper clips long. How many paper clips would you need to go around the whole square?

41. Kyra ate half of a small pizza. Jim also ate half of the same pizza. How Much of the pizza is left?

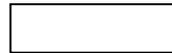
Answer: Nothing is left; two halves make a whole.

42. On a sheet of paper, draw the figure that does not belong. Tell why?



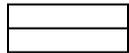
Answer: S; the others are closed figures.

43. Aunt Lucinda has a garden shape like this.



In one half she grows flowers. In the other half she grows vegetables.
Draw a picture of her garden.

Answer: Display pictures. Discuss different ways to show halves.

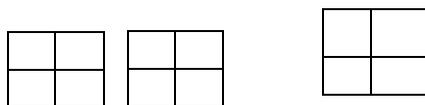


44. Which takes less time? Guess first, then try it with a friend.

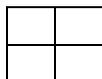
- a. Jump 10 times.
- b. Turn your body around 10 times.

Answer: Probably turn around.

45. Think about the pattern. Draw the picture that comes next.



Answer:



46. Which takes longer? Guess first, then try it with a friend.

- a. Bounce and catch a ball 10 times.
- b. Write your first name 10 times.

Answer: Probably write.

47. Continue these patterns.

25, 35, 45, _____, _____, _____

13, 23, 33, _____, _____, _____

87, 77, 67, _____, _____, _____

Answer: 55, 65, 75; 43, 53, 63; 57, 47, 37.

48. Greta has some coins in her change purse. The value is 8c. What could she have?

Answer: 8 pennies or 1 nickel and 3 pennies

49. You want to buy a jump rope. It cost 16c. Show different ways you could give the clerk 16c.

D						
N						
P						

Answer: D = 1, 1, 0, 0, 0, 0

N = 1, 0, 2, 3, 1, 0

P = 1, 6, 6, 1, 11, 16

50.

SPOONS 5 ¢	FORKS 6¢	CUPS 10¢
------------	----------	----------

Which costs more to buy-2 spoons and a cup or a spoon, a fork, and a cup?

51. Give an addition question for this story. Can you think of more than one question? Answer your question.
Pia had 4 nickels. She earned 3 more nickels drying dishes.

Answer: How much money did she have in all? Or How many nickels did she have in all?

52. Use only the numbers in the squares. Show all the different 2-digit numbers you can make.

4

3

9

53. Write the next number in the pattern.

10, 20, 30, _____

20, 40, 60, _____

15, 25, 35, _____

33, 53, 73, _____

Answer: 40; 60; 45; 93

54. Write the next number in the pattern.

90, 80, 70 _____

90, 70, 50 _____

85, 75, 65 _____

63, 53, 43 _____

Answer: 60; 30,55; 33

55. What number does not belong in each group?

A. 35; 38; 27; 36; 34

B. 46; 45; 48; 64; 43; 49

C. 64; 84; 24; 74; 45; 34

Answer: Group A: 27 (3 tens); Group B: 64 (4 tens); Group C: 45 (4 ones)

61. These numbers got out of order. Can you put each set back in order from least to greatest?

A. 17, 56, 21, 38, 71

B. 45, 53, 28, 81, 38

C. 50, 22, 75, 54, 95

D. 90, 51, 38, 62, 73

Answer: A: 17, 21, 38, 56, 71 B: 28, 38, 45, 53, 81, C: 22, 50, 54, 75, 95 D: 38, 51, 62, 73, 90

62. I am a number. If you subtract 6 from me, you get a number that is the same as $4+5$. What am I?

Answer: 15

63. Put your own numbers in the problem. Write a question for the problem.

Favorite Sports

Children in the neighborhood like skateboarding. _____ children like swimming best.

Answer: answers will vary

64. Copy the facts. Write the missing signs.

$$3 \square 7 = 10 \quad \square \quad 6 \square 5 = 1 \quad \square$$

$$4 \square 3 = 1 \quad \square \quad 12 \square 5 = \square$$

$$9 \square 2 = 11 \quad \square \quad 2 \square 6 = \square$$

$$9 \square 5 = 4 \quad \square \quad 4 \square 4 = \square$$

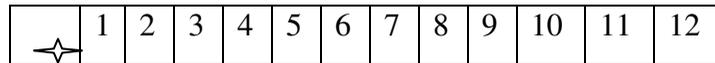
Answer: +; -; -; +; +; -; -

65. Joan exercises every day. She runs on the first day, swims on the second day, and walks on the third day. Continue the pattern. What exercise will she do on the seventh day?

Answer: run

66. a. Tomlin threw 2 darts and scored 7 points. Where did the darts land? Then he threw 3 darts and scored 9 points. Where did the darts land.

Answer: 5, 2, or 4, 3; 5, 3, 1, or 4, 3, 2 or 3, 3, 3



Begin on ✦

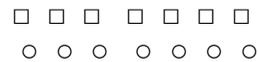
b. Take 12 hops forward. Take 7 hops back. Where do you land?

Answer: 5 Make up a counting game for a friend.

67. If today is January 5, what is tomorrow? What would 2 days from now be? What date would it be 5 days from now?

Answer: Jan 6; Jan. 7; Jan. 10

68. Make designs with these shapes to show different ways to make 7.



Answer: Will Vary. Discuss students' designs.

69. Use white or coloured chalk. Look at these patterns. Continue them on a sheet of paper.



Answer: Δ □ Δ

Answer: ○ □ ○

Answer: Δ ○ Δ

70. Use 3 of these numbers 1, 2, and 3 at a time to write an addition sentence. How many complete sentences can you write?

Answer: 2 sentences: $1 + 2 = 3$; $2 + 1 = 3$

71. Four boats raced in the regatta in Exuma. The blue boat was not first or third. The red boat was last. In what place did the blue boat finish?

Answer: second place

72. **Solve the riddle.**

Add me to 10 to get 14. Subtract me from 7 to get 3. What number am I?

Answer: 4

73. Make up a subtraction story problem for $5 - 1 = ?$.

Answer: 4 Share and Discuss students' stories

74. Use a number only once in each problem. Write as many addition and subtraction facts as you can.

0 1 2 3 4 5

Sample: $5 + 5 = 5 + 5 = 4 + 3$

$4 + 4 = 3 + 3 = 3 + 2$

75. I am more than 3. I am less than 10. When you add one to me, I am halfway to 10.

What number am I?

Answer: 4

76. Use this code to write 5 addition problems. Have a classmate write the answers.

0 1 2 3 4 5 6

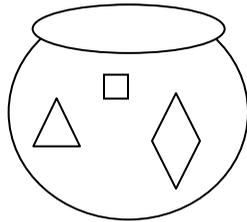
Answer: Example: $+ =$

77. June is carrying 6 balloons. Ivy is carrying more than that. How many more balloons is Ivy carrying? Write an addition sentence.

78. Luis is 4 years old. Nina is 1 year older than Luis. Tony is 2 years younger than Nina. How old is each child?

Answer: Nina is 5 years old. Luis is 4 years old. Tony is 3 years old.

79. Which shape does not belong in the bowl? Why?

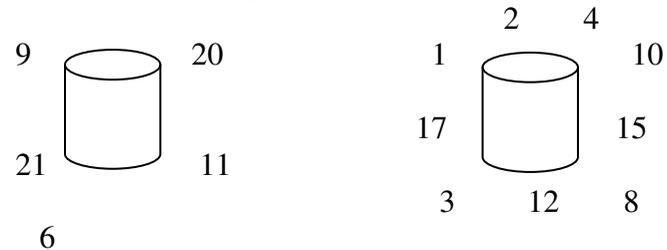


Answer: ▷ has 3 sides, all others have 4 sides.

80. Solve the riddle. I am either a cube, box, sphere, or cylinder. I have fewer than 4 edges. I have a curved face. I have at least 1 flat face. What solid figure am I?

Answer: cylinder (can)

81. Draw 2 bowls on paper. Sort the numbers by writing them on the Bowl shapes. Can you find more than one way?



Answer: Sort by odd/even, more than ten/less than ten.

82. A bag contains 4 red marbles, 6 green marbles, and 1 black marble. Is it certain, possible, or impossible to pick a blue marble from the bag?

Answer: Impossible

83. Samuel draws a line through a square to make two three-sided figures. Did he draw a line of symmetry? Explain

Answer: He drew a line of symmetry.

84. A square table has 1 chair on each side. How many people can sit at the table?

Answers will vary

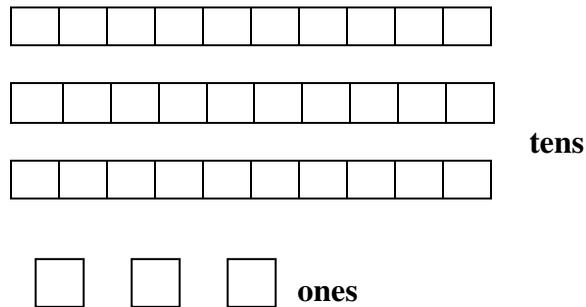
85. Nan has a cat and a dog. In what ways are these animals the same?

Answers will vary

86. Think about your nose, mouth, and eyes. Which is on top? Which is in the middle? Which is on the bottom?

Answer: Nose: Middle Mouth: Bottom Eyes: Top

87.



What 2- digit numbers could you show using any combination of these tens and ones pieces?

Answer: 10, 11, 12, 13, 20, 21, 22, 23, 30, 31, 32, 33

88. How many numbers are more than 50 and less than 58?

Answer: 7 numbers

89. How many numbers are less than 90 and more than 85?

Answer: 4 numbers

90. Write the number sentence



Answer: $6 + 3 = 9$

91. Shirley has 4 dillies and 3 coco plums. She also has 1 quava. How many pieces of fruit does Shirley have altogether?

Answer: 8

92. There are 9 houses on the block. The 5th house is yellow. The last house is green. The rest of the houses are white. How many are white?

Answer: 7 white houses

93. High Rock Primary is having a bean bag toss contest. The person who tosses the most bean bags through the hoop wins. Mary won the contest but made her mom guess how many bean bags she got through the hoop. Here are the clues Mary gave.

There are more than 28.
 There are fewer than 32.
 It is an even number.

How many bean bags did Mary toss through the hoop? Finish the table, counting by ones, and use the clues to write the number. _____

28

94. Tim has 2 ten cent coins, 3 five cent coins, and 4 pennies. A balloon costs 30¢. Can Tim buy it?

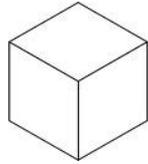
Answer: Yes Tim has 39¢.

95. Terry wrote the addition example below. What mistake did he make? Write the example correctly to fix his mistake.

$$\begin{array}{r}
 48\text{¢} \\
 + 47\text{¢} \\
 \hline
 85\text{¢}
 \end{array}$$

Answer: Terry forgot to regroup. The correct answer is 95¢

96. How many faces does this plane figure have



Answer: 6 faces

97. David picks an odd number from a box. It has 2 tens. It is less than 30. It is greater than 27. What number does David pick?

Answer: 29

98. A drawer contains 4 brown socks, 8 white socks, and 10 black socks. Are you more, less, or equally likely to chose a brown sock than white?

Answer: Equally likely Have students to explain responses

99. There are 15 dogs and cats in a store. 9 of the pets are dogs and 4 of the cats are white. How many cats are there?

Answer: 6 cats

100. Gary can go swimming, to the park, or to the carnival. It is too cold to swim. Gary likes to wing, but he is tired of going to the park. Where does Gary go?

Answer: Carnival

Problems of the Day

Primary School Mathematics

Grade 2

PROBLEM OF THE DAY: GRADE 2

Instructions: The following can be read aloud or written and discussed with students

1. Find the missing number in each problem.

$$\begin{array}{r} \square \\ 4 \\ \hline 9 \end{array} \quad \begin{array}{r} \square \\ 6 \\ \hline 14 \end{array} \quad \begin{array}{r} 5 \\ \square \\ \hline 14 \end{array} \quad \begin{array}{r} 9 \\ + \square \\ \hline 13 \end{array} \quad \begin{array}{r} 7 \\ \square \\ \hline 14 \end{array} \quad \begin{array}{r} 6 \\ \square \\ \hline 13 \end{array}$$

Answers: 4; 7; 6; 2; 3; and 5

2. Mr. Gibson has 10 animals on his farm in Long Island. Some are goats and some are chickens. Altogether there are 26 legs. How many Chickens are there if there are 3 goats?

Answer: 7 chickens

3. Dericka did these problems and the answers are incorrect. Change 1 digit in the addends of each problem to make them correct for Judy.

$$\begin{array}{r} 34 \\ +28 \\ \hline 72 \end{array} \quad \begin{array}{r} 14 \\ +59 \\ \hline 72 \end{array}$$

Change 1 digit in the addends of each problem to make them correct for Dericka.

Answer: Accept all reasonable answers.

Alternatives

Create different sets using the various operations.

Example:

$$\begin{array}{r} 16 \\ - \square \\ \hline 7 \end{array} \quad \begin{array}{r} \square \\ \times 3 \\ \hline 21 \end{array}$$

Use different animals and objects with two or four legs, wheels etc.

4. Write the next 3 numbers in each pattern.

50, 60, 70, _____, _____, _____
100, 80, 60, _____, _____, _____
94, 84, 74, _____, _____, _____
65, 60, 55, _____, _____, _____
23, 33, 43, _____, _____, _____

Answers: 80, 90, 100; 40, 20, 0; 64, 54, 44; etc

5. Which sum is greatest?

21 11 18 20 22
+13 +31 +21 +19 +12

Answer: 11 + 31 = 42

6. Which problems have a difference of 23?

A	B	C	D
78	38	87	59
<u>-55</u>	<u>-15</u>	<u>-44</u>	<u>-26</u>

Answer: A and B

7. Jamico had 3 quarters when he went to the shop. He bought a cup and salty sausage for 52 cents. How much money did he have left? What kinds of coins might he have in his pockets?

Answer: \$0. 23 ; accept all reasonable answers

8. Less has 2 pieces of wire. One piece is 24 inches. The other piece is 12 inches. Does he have more or less than 30 inches? How much more or less?

Answer: He has 6 inches more

9. Trudy has 4 more stickers than Melissa. Together they have 10. How many stickers does Melissa have? Guess and then check.

Answer: 3

10. Mike is cutting sandwiches into fourths. He cuts 3 sandwiches. How many equal pieces does he have?

Answer: 12

11. What number does not belong in each group?

A. 35 38 26 36 34

B. 46 48 64 43 49

C. 64 84 74 24 37

Answer: Group A is 27

Group B is 64

Group C is 37

12. I have 3 coins worth 12 ¢. What are they?

Answer: 1 ten cent coin, 2 one cent coins

13. Copy the problems and fill in the missing signs.

a. $12 \square 13 = 25$

c. $45 \square 22 = 67$

b. $22 \square 10 = 12$

d. $71 \square 12 = 83$

Answers: +, -, +, +

14. Use only the numbers in the squares. Show all the different 2-digit numbers you can make.

3 4 9

Answer: 43, 34, 94, 49, 39, 93

Change numbers and operations

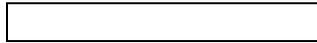
15. Erica got home at 2 o'clock in the afternoon. She ate dinner 4 hours later , what time did she eat?

Answer: 6 o'clock in the evening

16. You want to buy an apple. It costs 17c. Show different ways you could give the clerk 17c.

Answer: accept all valid money amounts

17. Aunt Lucinda has a garden shaped like this:



In one half she grows flowers.
In the other half she grows
vegetables. Draw a picture of her garden.

Answer: accept all reasonable answers

18. Joan exercise every day. She runs on the first day, swims on the second day, and walks on the third day. Continue the pattern. What exercise will she do in the Seventh day?

Answer: run

19. Jerome drinks 6 glasses of water everyday. How many glasses of water does he drink in 10 days?

Answer: 60 glasses

Change shape and purpose.

Change pattern for example; fruit brought for lunch or leisure activity.

20. Each student chose a number

16	29	2	89	72
----	----	---	----	----

Alicia chose 29

Beverly did not choose 16

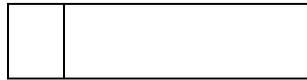
She chose the smallest number.

Dolores chose 72

What numbers could Edward choose?

Answer: 16 or 89

21. How many rectangles can you find?



Answer: 3

22. Cedric is taller than Mark, and Devin is the tallest of the three. Who is the shortest?

Answer: Mark is the shortest

17 99 76 56 15 37

23. I am thinking of one of these numbers. It is less than 85. It is greater than 39. The sum of its digits is 11. What is the number?

Answer: 56

24. Latoya has 5 coins in her pocket worth 42¢. 3 of them are less than a dime. One coin is a dime. Another coin is greater than a dime. Draw a picture to show what her coins are.

Answer: (25) (10) (5) (1) (1)

Use different numbers and different skill, for example odd numbers etc.

Change money value and amounts of coins present.

SPOONS 5 ¢ FORKS 6¢ CUPS 10¢

25. Which costs more to buy –2 spoons and a cup or a spoon, a fork, and a cup?

Answer: Spoon, fork, and cup cost 21¢

26. One side of a square is 10 paper clips long. How many paper clips would you need to go around the whole square?

Answer: 40 paper clips; a square has 4 sides all the same length.

27. Add:

the number of sides in a triangle
the number of corners in a square
+ the number of sides in a circle

Answer: $3 + 4 + 0 = 7$

28. The Bahamas National Trust was 50 years old in 2009. What year was it started?

Answer: 1959

29. Mr. Johnson brought his catch from Bimini to Nassau to sell. He sold everything in one day. Use this chart to find out how much money he made.

Product	Cost	Amount sold
Crawfish	\$ 9.00	2
Grunts	\$ 4.00	5
Snapper	\$ 7.00	3

Answer: \$59.00

Use items local to the area also have persons purchase things from Nassau.

30. There are 10 000 flamingoes in the rookery in Inagua. 2 467 are females. How many males are there?

Answer: 7 533

Change island and animas **indigenous** to that island.

31. Mama Rose used silver top to plait 234 yards of straw. She will sell it for \$5.00 a yard to a vendor in Nassau.

Use various local names and items sold from any island.

Answer: \$1 170.00

32. Use the table below to answer questions about various items sold at the Conch Fest in...

Conch Salad	
Conch Fritter	
Crack Conch	
Scorched Conch	

Questions:

- What food item did most persons buy? _____
- How many persons bought Scorched Conch? _____
- How many persons bought conch Salad and Conch Fritters? _____

Answers : Conch Fritters; 8; 33

33. At the Exuma Cays Land and Sea Park, a record is kept to help keep count of the various living creatures. Use the pictograph below to answer questions about various animals in the park.

Animals	Amount	Number
Osprey	<i>O O O O O</i>	
Sea Turtles	<i>O O O</i>	
Iguanas	<i>O O O O O O</i>	
Hutias	<i>O O O O</i>	

Key: *O* = 20

Questions:

- Write the animals in order from least to greatest. _____
- Which animal is 40 less than the Iguanas? _____
- How many Sea Turtles and Hutias are there in the park? _____

Answers: Iguanas, Osprey, Hutias, Sea turtles; Hutias; 140

34. The 2009 Boxing Day Junkanoo parade started at 2:30 a.m. , it lasted for eight hours. At what time did the parade end?

Change event and times.

Answer: 10:30 a.m.

35. The Rolle Family has a family reunion every five years. If their last reunion was held in 2007, when will the next reunion be held?

Answer: 2012

36. Thirty members of the _____ church cleaned up the community park on Saturday. They divided the work equally into six groups. How many persons were in each group?

Change organization and community project.

Answer: 5

37. I am thinking of a number. It is less than 85 and greater than 39. The sum of its digit is 11.What is the number?

Answer: 56

38. Ogden has a dime. Loren has 2 dimes more than Ogden. Elsa has 1 more dime than Loren. Lonnie has 2 dimes more than Loren. How much money does Loren have?

Answer: 50 cents

39. Trudy has 4 more stickers than Melissa. Together they have 10. How many stickers does Melissa have? Guess and then check.

40. Give a subtraction question for this story. Write a subtraction sentence to answer your question. Paul had a piece of string 10cm long. He used a piece That was 7cm long.

41. Use the Calendar below to answer the following questions about the Long Island Regatta.

June 2010

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2 Committee Meeting	3	4 Opening Ceremony & B Class Race	5 A & C Class Race
6 Church Service	7 Awards Ceremony	8	9	10	11	12
13	14	15	16	17 Committee Meeting	18	19
20	21	22	23	24	25	26
27	28	29	30			

Questions:

- How many days was the regatta held? _____
- Which day of the week has no activity? _____
- Which week has the most activities? _____
- On which days will the committee meet? _____

Answers: 4 days; Tuesday; week of 1st – 5th ; Wednesday the second and Thursday the seventeenth

42. Copy the problems and fill in the missing signs.

$$\begin{array}{ll} 12 \square 13 = 28 & 45 \square 22 = 67 \\ 22 \square 10 = 12 & 71 \square 12 = 83 \\ 51 \square 27 = 78 & 86 \square 75 = 11 \end{array}$$

43. Help this machine finish its work. What is its rule? Complete.

IN	4	5	8	2	10
OUT	6	7	10	4	12

Answer: Rule is + 2.

44. Can you write an addition question for this story? Can you think of more than one question?

Pia had 4 nickels. She earned 3 more nickels drying dishes.

45. Which one does not belong?

2 nickels	1 nickel	5 pennies	5 pennies	10 pennies
2 dimes	1 quarter	5 nickels	3 dimes	2 dimes

Answer: All amounts are 30¢ except 5 pennies and 3 dimes

46. Provide a large sheet of newsprint. Draw a picture of 3 things you do during a day. Put them in order.

First next last

47. Joan exercises every day. She runs on the first day, swims on the second day, and walks on the third day. Continue the pattern. What exercise will she do in the Seventh day?

Answer: Run

48. Jerome drinks 6 glasses of water everyday. How many glasses of water does he drink in 10 days.

Answer: 60 glasses

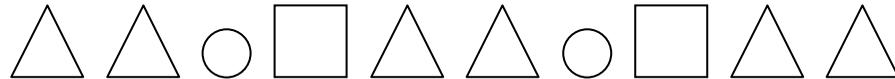
49. Write as many fact families as possible using only these numbers. Do not use a number more than once in any facts.

7 2 10 8 5 3

**Students can write 4 facts for each of these families:
2, 3, 5; 3, 5, 8; 2, 5, 7; 3, 7, 10; and 2, 8, 10.**

50. Rico has 6 triangles, 3 circle, and 3 squares. Draw a pattern that Rico can make. Check student drawings.

Example:



51. How many numbers are less than 90 and more than 85?

Answer: 4 numbers

52. Using the digits 2, 5, 3, 8, Which two numbers should you group in order to make a ten?

Answer: 8, 2

53. What date is 3 days after December 9th ?

Answer: December 12th

54. Is the value of 53 pennies closer to the value of 5 dimes or 6 dimes?

55. Write the number for each number word. twenty-two; ninety; fifty-four

56. What addition sentence comes next in the pattern?

$$\begin{array}{l} 2 + 4 = 6 \\ 3 + 4 = 7 \\ 4 + 4 = 8 \\ 5 + 4 = 9 \end{array}$$

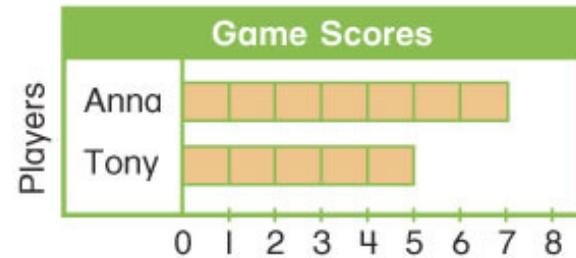
57. Which subtraction facts have a difference of 4?

$$12 - 6 = ? \quad 11 - 7 = ? \quad 13 - 9 = ?$$

58. Danny thinks of a number. It has an 8 in the ones place. It has the same number of tens as ones. What is Danny's number?

59. What number doubled is 14?

60. How many more points did Anna score than Tony?



61. List all even numbers between 20 and 30.
62. Judy plays two games of chess. Her first game lasts 23 minutes. Her second game lasts 31 minutes. For how many minutes does Judy play altogether?
63. Marie has 15 marbles. Harry has twice as many marbles as Marie. How many marbles do they have altogether?
64. In May and June, a total of 52 people visited Adastra Gardens. The number of people who visit the gardens in May is 32. How many people visited Adastra Gardens in June?
65. Seventeen people visit the penguin house at the zoo. Then 9 people leave. 23 more people come in. How many are in the penguin house now?
66. Five 😊 on a pictograph stand for a total of 20 children. How much does 1 😊 stand for?
67. Daniel decorates 35 boxes. Simeon decorates 26 boxes. Jewel decorates 5 more boxes than Simeon. Who decorates more boxes? Daniel, Simeon, or Jewel?

Answer: Daniel

68. Olivia makes 25 bracelets. For 8 of them she uses green thread. For the others she uses red thread. How many bracelets does Olivia make with red thread?
69. Michele earns \$13 on Saturday. On Sunday she earns twice as much. On Monday she earns \$8. What is the total amount Michele earns?
70. Sixteen children are on the park. Then twice as many children arrive. How many children in all are on the park?
71. Draw the figure that is most likely to come next in the pattern.



72. There are 64 blank pages in Darnel's mathematics journal. If she fills in 18 pages the first week and 23 pages the second week, how many blank pages are left?

Answer: 23 pages

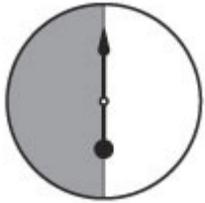
73. The sum is 15. One addend is 3 more than the other. What are the two addends?

74. Write the missing number in the pattern. 1, 2, 2, 3, 3, 3, 4, 4, 4, ____
75. Lunch begins at 11:30. It lasts 45 minutes. What time does lunch end?
76. Sarah was born on the third day of the first month. What is Sarah's date of birth?
77. Numbers 40 through 50 are in a hat. I pick 44, 40, 49, 41, and 45. What numbers are left in the hat?
78. Keisha puts 2 quarters in her bank each day. How many days will it take her to save \$3.00?
79. Stephen Dillet's Blue Marlin and Freeport Primary Conquerors are playing basketball. So far this season, the Marlins have 100 points more than last year's final score of 385. The Conquerors have 10 more points than the Blue Marlins have. How many points does each team have so far this year?
80. Ten groupers were swimming in one direction. Half of them swam in another direction. How many groupers were left swimming on the original direction?
81. Draw the next picture in the pattern.



82. Paul sets the table with 8 plates. What is the fraction that tells about 1 plate on the table?
83. Lady Pindling reads 5 pages of her book each day. On which day will Lady Pindling finish reading 25 pages?
Answers will vary depending when Lady Pindling starts reading her book.
84. Darnell has 3 eggs. She buys a dozen more. Then she uses a half dozen. How many eggs does Darnell have left?

85. Is it more likely, less likely, or equally likely for the spinner to land on white than grey?



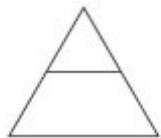
86. If September 25 is on a Thursday, how many Saturdays are left in that month?

87. If a crayon is longer than a paper clip, will it take more or fewer paper clips than crayons to measure a book?

88. Patsy has 35 stamps. Rickiera has a dozen more stamps than Patsy. How many stamps do they have altogether?

89. A fence has 5 posts from its beginning to its end. The poles are 10 feet apart. How long is the fence?

90. Draw 2 lines to make 4 equal parts.



91. It is winter and snow is falling. Is it more likely to be 25°F, 70°F, or 110°F?

92. Does a book weigh about 1 pound, about 1 inch, or about 1 cup?

93. I am thinking of two numbers. Their sum is 21. One number is 9 more than the other. What are the two numbers?

94. Ben is thinking of a number that is between 24 and 30. When the tens digit of the number is subtracted from the ones digit, the difference is 6. What number is Ben thinking of?

95. Rickiera's first test takes her 34 minutes to complete. Her second test takes her 25 minutes to complete. About how long does it take Rickiera to complete both tests?

96. Rashad puts 4 crayons into each box. How many crayons will be in 7 boxes?

Answer: 28

97. Angela has 27 pictures. She wants to put 3 pictures in each booklet. How many booklets does she need?

Answer: 9 booklets

98. Eric has 23 CDs. He puts 4 CDs on each page of an album. How many pages can he fill? How many CDs are left over?

99. Write a 2-digit number. The digit in the ones place should be greater than the tens digit.

Answer: Will vary

100. Your friends just gave you 12 sparkle markers. Now you have 19 markers. How many markers did you have before your friends gave you 12 more?

Problems of the Day

Primary School Mathematics

Grade 3

PROBLEM OF THE DAY: GRADE 3

Instructions: The following can be read aloud or written and discussed with students.

1. What two numbers sum is 15 and whose difference is 3?

Answer: 6 and 9

Alternatives

Sum is 11 and difference 3

Answer: 4 and 7

Sum is 13 and difference 3

Answer: 5 and 8

2. Andrew bought half- dozen eggs. On the way home he dropped them, and four eggs broke. So Andrew went back to the store and bought another half dozen eggs. How many eggs does he have now?

Answer: 8

3. How many different ways can you write a number sentence with a sum of 13 using two numbers from 1 through 9?

Answer: $9 + 4$; $8 + 5$; $7 + 6$

Alternative sums; 15 ,12, 9

Sum 15: $9+6$; $8+7$;

Sum 12: $9+3$; $8+4$; $7+5$; $6+6$

Sum 9: $8+1$; $7+2$; $6+3$; $5+4$

4. David, William and Dexter all attend Carmichael Primary School. David lives 2 miles from the school. William lives 3 more miles away from the school than David. Dexter lives 4 miles from the school. How many more miles does William live from the school than Dexter?

Answer: 1 mile

5. Jeffrey has 3 bags of marbles with 100 marbles in each bag. He also has 9 single marbles. How many marbles does he have in all?

Answer: 309 marbles

6. Stickers come in squares of 100, in strips of 10, and singly. How many stickers would you have if you had 2 squares, 12 strips, and 3 single stickers?

Answer: 323 stickers

7. Computer paper comes in packages of 100 sheets and in boxes of 10. (Vice Principals name) has 2 boxes and 14 packages of computer paper in (his/her) office. How many sheets of computer paper does (he/she) have? Change supplies to pencils, stickers, sharpeners etc and quantity amount.
- Answer: 3 400 sheets**
8. The Taylors lived in Hope Town Abaco, with a population of 109 099. They now live in Murphy Town Abaco with 1 000 more people. What is the population of the town in which they now live? Change settlements to match various islands.
- Answer: 110 099**
9. Henry bought a book and gave the cashier 2 one-dollar bill, 1 quarter, and dimes. The cashier asked Henry for 1 more dime. How much did the book cost? Alternate money amounts and currency [Bahamian and American]
- Answer: \$2.55**
10. Paris buys a pencil that cost \$1.59. She pays with a five-dollar bill. How much change will Paris receive? Change to other school supplies and vary the cost.
- Answer: \$3.41**
11. Phillip has 1,034 stickers. Cedric has 1 304. Who has more stickers? How do you know? Alternate product and amount.
- Answer: Cedric , 1 304 is greater than 1 034**
12. Which is greater? 3 256 rounded to the nearest hundred or 3 256 round to the nearest ten? How can you tell?
- Answer: 3 256 rounded to the nearest hundred, accept all reasonable answers.**
13. Dwight is 8 years old. His grandmother was visiting when he was born. Since then his grandmother has visited every other year. How many times has Dwight's grandmother visited?
- Answer: 5**
14. In August crawfish tails were sold for \$7.00 a pound. Mrs. Kemp bought crawfish to cook for Sunday Dinner. She paid \$28.00. How many pounds of crawfish did she purchase?
- Answer: 4**

15. The table below shows the number of books read by third and fourth grade students of Garvin Tynes Primary School.

- a) In which month were the fewest books read?
- b) In which month, were the greatest number of books read?
- c) Which grade read the most books?

Books Read in School Read-A Thon		
Month	Grade 3	Grade 4
January	120	145
February	146	123
March	112	112

Answers: a) March b) February c) Grade 4

16. Ashley and Kendra each had pizza for dinner. Ashley’s pizza was cut into 6 equal slices and Kendra’s pizza was cut into 12 equal slices. Ashley ate 5 slices and Kendra ate 5 slices of her pizza. Who ate more of their pizza?

Answer: Ashley

17. Samantha has two more pencils than DeAngelo. What happens when she gives him one of her pencils?

Answer: They will both have the same amount of pencils.

18. Ricardo’s mother baked coconut tarts for dessert. She told him that he and his friends could have some for an afternoon snack, as long as they ate only half of what she baked. If Ricardo has five friends, how many coconut tarts must there be in all for each to have 1?

Change dessert and amount of friends.

Answer: 12

19. Raymond is working to earn money to buy an Xbox. His uncle wants to help him. He told him that if he earns $\frac{1}{5}$ of the cost, he will pay the rest. Raymond earned \$20. How much money does his uncle need to give him? How much does the Xbox cost?

Change purchase item, cost and fraction to be earned.

Answer: \$80.00, the Xbox cost \$100.00

20. Aunt Cybil sells sweet treats on the weekends. Sami has \$3.00 to spend. Use the table below to answer the questions.

Aunt Cybil's Sweet Treats	
cake	cost
Bennie cake	\$1.15
Coconut cake	\$1.45
Almond cake	\$1.27

- a) Can he buy two coconut cakes?
- b) How much does an almond cake and a bennie cake cost? Would Sami get any change? If yes, How much?

Answer: a) yes b) \$2.42, yes, \$ 0.58

21. At the Andros crab Fest 362 crabs were used to prepare crab dishes. 124 crabs were used for crab and rice. 116 crabs were used for crab and dough, and the rest was used for crab soup. How many crabs were used to make crab soup?

Answer: 122

Change event change food item.
 Example: coconut at the Coconut Festival In Andros
 Pineapples at Pineapple Fest

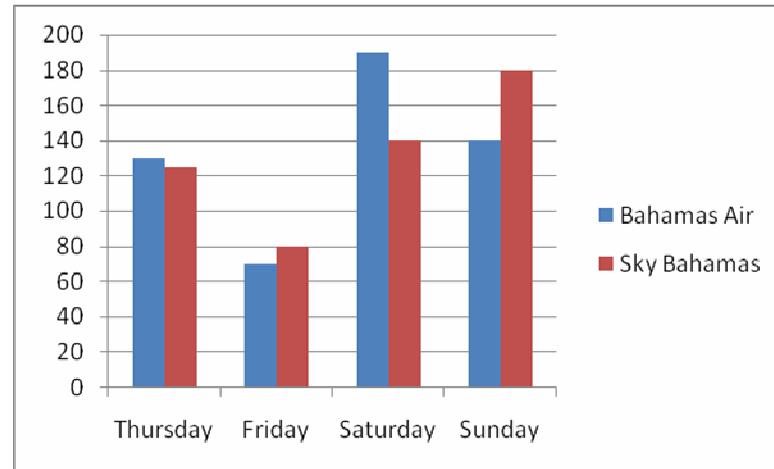
22. James thought that he could trick his brother and get a bigger piece of carrot cake. He asked, “do you want $\frac{1}{3}$, $\frac{2}{6}$, or $\frac{4}{12}$ of the carrot cake?” his brother said, “since you are being so nice, you keep $\frac{4}{12}$ and I’ll take what is left over. Is James happy? Explain your answer?

Answer: no explanations will vary.

23. Janice cut a loaf of banana bread into 8 slices. She gave three of her friends a slice. She wrapped two slices for her grandparents. She ate a slice. Write a fraction and an equivalent fraction to show how many slices of bread Janice has left.

Answer: $\frac{2}{8}$ and $\frac{1}{4}$

24. For the Exuma Regatta, Bahamas Air and Sky Bahamas made several flights. Use the graph to answer the questions.



- a) How many passengers did Bahamas Air carry on Saturday?
- b) Which aircraft carried more passengers? How many more passengers did they carry?
- c) Which day did they carry the least amount of people? How many passengers did they carry on that day?

Answers: a) 190 b) Bahamas Air 5 c) Friday 150

25. There are 30 minutes in half hour. How many groups of 5 minutes are in a half hour?

Answer: 6

26. Jade has 12 green grapes and 6 red grapes. She wants to share all of the grapes equally among herself and her two friends. How many grapes of each color will they get?

Answer: 2 red grapes, 4 green grapes.

27. In a pictograph to show people’s favorite day of the week, the symbol ☺ stands for 6 people. How many ☺ would be in the pictograph to show that 24 people picked Friday as their favorite day?

Answer: 4

28. Try filling in the missing numbers in the magic square below. Use numbers 1 through 9. Make all rows, columns, and diagonals add up to 15.

8		
	5	
		2

Answer:

8	1	6
3	5	7
4	9	2

29. James has 56 tomatoes divided equally among 7 crates. Joseph has 54 tomatoes divided equally among 6 crates. Who has more tomatoes in each crate? How can you tell?

Answer: Joseph

30. Andrewnique's birthday is 6 days after Valentine's Day. What is the date of Andrewnique's birthday? What information do you need to find the answer?

Answer: February 20th you need to know which day is Valentine's Day

31. The table below shows the amount of miles traveled by various Mail Boats. Read the chart then answer the questions that follow.

Mail Boat	January	February	March
Captain Moxey	647	445	499
Lady Mathilda	467	623	649
Emmitt and Cephas	632	752	478

- a) Which boat traveled the least amount of miles? _____
- b) Write the names of the mail boats in order from greatest to least to show the amount of miles they traveled. _____

- c) How many more miles did the Lady Mathilda travel than the Captain Moxey? _____

Answer: a) Captain Moxey b) Emmitt and Cephas Lady Mathilda Captain Moxey c) 148 mile

32. In the 2009 Carifta Games, The Bahamas won 8 bronze medals. They won 5 less gold medals than bronze. They won 9 more silver medals than bronze. How many medals did The Bahamas win in all?

Answer: 28 medals

33. There are 36 passengers on Pineapple Air. There are 77 passengers on Cat Island Air. Bahamas Air has the sum of the first and second airplanes. How many passengers are on Bahamas Air?

Answer: 113

34. Sir Milo Butler was born in 1906. Sir Lynden Pindling was born 24 years later. When was Sir Lynden born?

Answer: 1930

35. Chris Brown ran 54 miles on Monday, 46 miles on Tuesday, and 30 miles on Wednesday. Avard Muncur ran 149 miles the week before. Who ran the greater distance?

Answer: Avard Moncur

36. Marcus had a doctor's appointment at 2:15. He was one hour late. What time did he arrive at the doctor's office? Give your answer in two ways.

Answer: 3:15 or 15 minutes past 3

Change times and place or events.

37. Mrs. Forbes asked her first grader to tell her the time. The student said "the big hand is on the 2 and the little hand is on the 4." What time is it?

Answer: 4:10

38. It took Arianna Vanderpool-Wallace 22 minutes to swim 1 500 metres. If she finished the 1500 metres at 2:00pm, what time did she begin?

Answer: 1:38 p.m.

39. There are 4 boxes of yogurt in a case. Each box contains 2 cups. A case contains 6 boxes. How many cups of yogurt are there in a case?

Answer: 48 cups

40. A birthday cake was cut into 8 equal slices. Rhonda ate 2 slices and her sister ate 3 slices. What fraction of the pizza was not eaten?

Answer: 3/8

41. There are 827 people at the concert. A reporter wants to round that number to the nearest hundred. What number should the reporter use?

42. How many numbers between 500 and 1000 have both 7 ones and 5 tens?

43. Lonice placed 3 hundred flats, 7 tens rods, and 8 ones units on the table. Jason added another hundreds flat. Deborah took away 2 tens rods. What number is Lonice modeling now?

44. Write the missing number in this pattern. 100, 300, 500, ____, 900

45. Write the missing digits.

$$\begin{array}{r} 4 \square 6 \\ - 5 \square \\ \hline \square 3 3 \end{array}$$

46. Andy has only nickels and dimes. He has 9 coins. He has 75¢. How many of each coin does he have?

47. What number pattern is shown here?

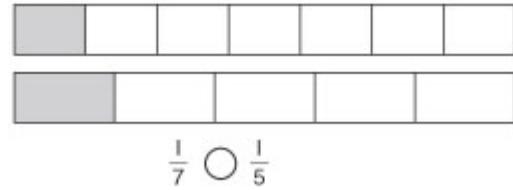
726, 626, 526

Answer: Decreasing by 100

48. Predict which part the spinner would land on the most. Explain your reasoning.



49. Compare the fractions. Write $<$, $=$, or $>$.

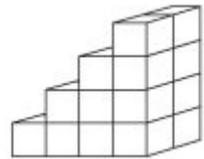


50. A movie runs for 180 minutes. How many hours is that?

51. The sides of a triangle measure 3 cm, 4 cm, and 5 cm. Find the perimeter.

Answer: 12 cm

52. How many cubes does it take to make these steps? Each step is 2 cubes wide.



53. Complete: 3×2 is to 2×3 as 4×5 is to ____.

54. Which solid figure has more edges?



55. How can you show 93¢ using the fewest coins possible?

56. Which numbers between 400 and 800 have both an 8 in the tens place and a 3 in the ones place?
57. What are the next two numbers? 5, 8, 6, 9, 7, 10, 8, . . .
58. Ralphry gives 17 dillies to Amber and 4 of her friends. How many dillies does each person get and how many are left over?
59. Sam is going to use the letters in his name as a password. How many different passwords can he make using each letter only once?
- a. 1 b. 3 c. 6 d. 9
60. Mrs. Brown asks James, Timothy, and Samuel to line up. How many different ways can they line up?
- a. 6 b. 4 c. 3 d. 2

Answer: 3

61. All the letters in the alphabet are placed in a bag. How likely is it that you will pull out a vowel?

Answer: a. $5/26$ b. $21/26$ c. $7/20$ d. $5/7$

62. There are twenty Spelling words on a test. Eight of the words begin with the letter S, four begin with the letter T, and the rest of the words begin with the letter M. Based on this information, which sentence is true?
- a. The first word on the Spelling test is more likely to start with a T than an S.
- b. The first word on the Spelling test is equally likely to start with an M than an S.
- c. The first word on the Spelling test is less likely to start with an S than an M.
- d. The first word on the Spelling test is less likely to start with an M than a T.

63. Ruth has twice as many coins as Dorothy. When Ruth gives Dorothy 2 coins, they each have the same number. How many coins do they each have?

64. Bill is twice as old as Curtis. The sum of their ages three years ago was 45 years. How old are they now?

Answer: Bill = 34; Curtis = 17

65. Mary looked out of her window in Inagua and saw a group of pigeons and donkeys passing by. She counted all the legs of the pigeons and donkeys and found that the total number of legs add up to 66. How many of each kind of animals (pigeons and donkeys) passed by her window if the total number of animals is 24?

Answer: 15 pigeons and 9 donkeys

66. An Island has no currency; it instead has the following exchange rate:

50 bananas = 20 coconuts

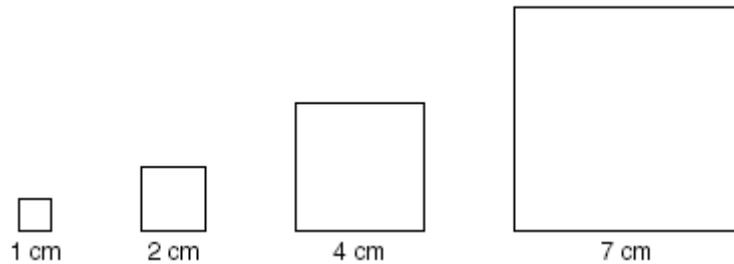
30 coconuts = 12 fish

100 fish = 1 bed.

How many bananas equal 1 hammock?

Answer: 1 bed = 625 bananas

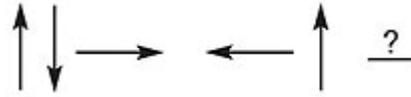
67. The squares below increase in size from left to right. If the pattern continues, how long will each side of the next square be?



- a. 8 b. 9 c. 10 d. 11

68. How many times are nine ones used in writing all the numbers between 1 and 100?

69. What figure comes next in the following sequence?



70. Mary has the following in her cash box: pennies, nickels, dimes, and quarters. If she has to return 25¢ change to a customer, how many different ways can she make change?

71. There are four dozen pamphlets on fire safety being delivered to a third-grade classroom of thirty-six students. Will there be enough for each person? How many pamphlets will be left over?

72. Every day last week Robert got a nickel from his mom and also found a penny. How much money was that?

Answer: 36¢

73. Harris read 53 pages in a storybook. She skipped 14 pages of pictures. How many more pages does Nan have left to read?

74. Sean is twice as old as his brother. In 5 years, Sean will be 11. How old is his brother now?

75. Use each of these digits only once to find the addends: 0, 6, 7, 8, 9.

$$\begin{array}{r} \square\square\square \\ + \square\square \\ \hline 804 \end{array}$$

76. Delores and Troy are playing an arcade game. Delores scores 25 points in each of her 3 turns. Troy scores 40, 30, and 10 points. Who has the higher score?

77. Who am I?

I am 17 more than 397.

I am 3 hundred more than 776.

I am twice as large as 209.

I am the greatest 3-digit number.

78. In Mr. Stewart's garden there are 5 heads of lettuce in each row. If Mr. Stewart planted 3 rows of lettuce, how many heads of lettuce will he be able to harvest?

79. How many whole numbers between 1 and 200 have the digit 7 in them?

80. Carlos has a blue shirt and a green shirt. He has white pants and brown pants. How many combinations of shirts and pants can he choose?

81. Dan lives 1 mile from Marathon Mall. Henry lives 8 more miles away from the mall than Dan. Phyllis lives 6 miles from the mall. How many more miles does Henry live from the mall than Phyllis?

82. Janice is in a basketball league. There are 5 teams in the league. If each team has 6 players, how many players are there in the league?

Answer: 30

83. Some months have 30 days and some have 31. How many months have at least 28 days?

84. The first jitney of the group has 28 people in it. The second jitney has twice that many. The third bus has the sum of people from the first and second jitneys. How many people are in these three buses?

85. I am thinking of two numbers whose sum is 14 and whose difference is 6. What are they?

86. In a ring toss game the points that can be scored are 4, 2, 3, and 9. How can Foster get a score of 15 with 3 tosses?

87. Glenda is thinking of a 3-digit number. The ones digit of the number is 4. The hundreds digit of the number is two times the ones digit. The tens digit is 2 less than the hundreds digit. What is Glenda's number?

Answer: 864

88. Fill in the missing numbers in the magic square. Each number from 1 to 9 will appear once. When the magic square is complete, the sum of the three numbers in any row, column, or diagonal will be 15.

8	?	6
?	5	7
4	?	?

89. Put the numbers in order from least to greatest:

23,454 23,445 24,354
22,345 23,123 22,534

90. Look at the pattern below. What comes next?



91. Tom and Eric have \$7 between them. Tom has \$3.70. Which one has more money?

92. Kenny is trying to save money. The first week he puts 25? into his piggy bank. The next week he puts 30? in the bank. If he keeps adding 5? to the amount he puts in his bank each week, how much money will he have after 8 weeks of saving?

93. A box can hold 6 books. There are 7 boxes of books, but one box has only 3 books in it. If all the other boxes are full, how many books are there in total?

Answer: 39 books

94. A 3-digit number has the sum of 17. The second digit is 4. If none of the digits are the same, what is the greatest number that fits this description?

95. Emily makes jewelry. She earns 50? for each piece of jewelry she sells. If Emily earned \$18.00 last week, how many pieces of jewelry did she sell?

96. Use these digits to complete each sentence below. Use each digit only once in a given number.

9	3
6	5
1	7

The smallest 3-digit number is _____.

The largest 3-digit number is _____.

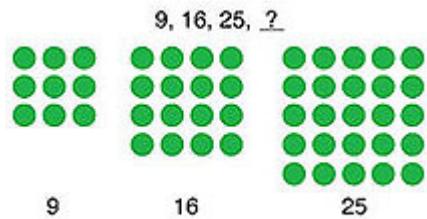
The 3-digit number nearest 600 is _____.

97. Jeff and George surveyed 75 people, asking if they like dogs or cats better. They made a pictograph to show the results. In their pictograph 🐱 stands for 5 people who like cats better. How many 🐱 would be in the pictograph to show that 30 people like cats better? If 🐶 stands for 5 people who like dogs better, how many 🐶 would be in the pictograph to show that 45 people like dogs better?

98. I have 2 digits. My tens digit is half my ones digit. I am an even number. The sum of my digits is 12. What number am I?

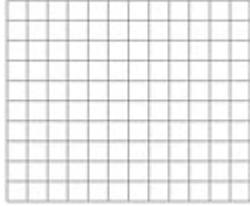
Answer: 48

99. Use the illustration below to find the number that comes next.



100. Lynn has 57 oatmeal cookies. She divides them equally into 3 cookie jars. Will there be more than or fewer than 20 cookies in each cookie jar?

101. The 6 girls are going to sleep in sleeping bags in the basement. The basement floor is tiled and it measures 10 tiles by 8 tiles. Each sleeping bag covers 6 tiles by 2 tiles. Will all the sleeping bags fit? How many tiles will not be covered?



102. Every 12 minutes two airplanes take off from the Lynden Pindling Airport. How many planes take off in 3 hours?

Rubrics

Primary School Mathematics

REPORT RUBRIC

	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Topic	Totally unrelated	Remotely related	Somewhat relevant	Directly relevant	
Organization	Not organized, events make no sense	Some organization, events jump around, start and end are unclear	Organized, events are somewhat jumpy	Good organization, events are logically ordered, sharp sense of beginning and end	
Quality of Information	Unable to find specific details	Details are somewhat sketchy	Some details are non-supporting to the subject	supporting details specific to subject	
Grammar & Spelling	Very frequent grammar and/or spelling errors	More than two errors	Only one or two errors	All grammar and spelling are correct	
Interest Level	Needs descriptive words	Vocabulary is constant, details lack "color"	Vocabulary is varied, supporting details need work	Vocabulary varied, supporting details vivid	
Neatness	Illegible writing, loose pages	Legible writing, some ill-formed letters, print too small or too large, papers stapled together	Legible writing, well-formed characters, clean and neatly bound in a report cover, illustrations provided	Word processed or typed, clean and neatly bound in a report cover, illustrations provided	
Timeliness	Report handed in more than one week late	Up to one week late	Up to two days late	Report handed in on time	
				Total	

ARTbeat@school

<http://www.sdcoe.k12.ca.us/score/actbank/reportrub.html>

GROUP DISCUSSION SCORING GUIDE

Teacher Name: _____

Student Name: _____

CATEGORY	4	3	2	1
Contributions	Routinely provides useful ideas when participating in the group and in the group discussion. A definite leader who contributes a lot of effort.	Usually provides useful ideas when participating in the group and in classroom discussion. A strong group member who tries hard!	Sometimes provide useful ideas when participating in the group and in classroom discussion. A satisfactory group member who does what is required.	Rarely provides useful ideas when participating in the group and in classroom discussion. May refuse to participate.
Attitude	Never is publicly critical of others. Always has a positive attitude about the task (s).	Rarely is publicly critical others. Often has a positive attitude about the task (s).	Occasionally is publicly critical of others. Usually has a positive attitude about the task (s).	Often is publicly critical of the project or others. Often has a negative attitude about the task (s).
Working with Others	Almost always listen to, shares with, and supports the efforts of others.	Usually listens to, shares with, and supports the efforts of others.	Often listens to, shares with and supports the efforts of others.	Rarely listens to, shares with, and supports the efforts of others.
Effort	Participation reflects student's best efforts.	Participation reflects a strong effort from this student.	Participation reflects some effort from this student.	Participation reflects very little effort on the part of this student.
CATEGORY	4	3	2	1
Contributions	Routinely provides useful ideas when participating in the group and in classroom discussion. A definite leader who contributes a lot of effort.	Usually provides useful ideas when participating in the group and in classroom discussion. A strong group member who tries hard!	Sometimes provide useful ideas when participating in the group and in classroom discussion. A satisfactory group member who does what is required.	Rarely provides useful ideas when participating in the group and in classroom discussion. May refuse to participate.

Rubric Made Using: RubiStar (<http://rubistar.4teachers.org>)

COOPERATIVE LEARNING RUBRIC

	1	2	3	4
Contribution to group goals	Works toward group goals only when prompted	Works toward group goals with occasional prompting	Works toward group goals without occasional prompting; accepts and fulfills individual role within group	Consistently and actively works toward group goals; willingly accepts and fulfills individual role within group
Consideration of others	Needs occasional reminders to be sensitive to the feelings of others	Shows sensitivity to the feeling of others	Shows and expresses sensitivity to the feelings of others; encourages the participation of others	Shows sensitivity to the feelings and learning needs of others; values the knowledge, opinion, and skills of all group members and encourages their contribution
Contribution of knowledge	Contributes information to the group only when prompted	Contributes information to the group with occasional prompting or reminding	Contributes knowledge, opinions, and skills without prompting or reminding	Consistently and actively contributes knowledge, opinions, and skills without prompting or reminding
Working and sharing with others	Participates in needed changes when prompted and encouraged; always or often relies on others to do the work	Participates in needed changes with occasional prompting; often needs reminding to do the assigned work	Willingly participates in needed changes; usually does the assigned work and rarely needs reminding	Helps the group identify necessary changes and encourages group action for change; always does the assigned work without having to be reminded

Signatures and comments:

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CLASS DEBATE RUBRIC

Category	Excellent	Good	Satisfactory	Needs Improvement
Information	All information was accurate and clear	Most information was accurate and clear	Most information was accurate and clear, but not usually thorough	Information had several inaccuracies or was usually unclear
Rebuttal	All counter-arguments were accurate, relevant, and strong	Most counter-arguments were accurate, relevant and strong	Most counter-arguments were accurate, and relevant, but several were weak	Counter-arguments were not accurate or relevant
Organization	All arguments were logical and clearly followed a premise	Most arguments were logical and clearly followed a premise	Arguments were logical, but did not always follow a premise	Arguments were illogical and did not follow a premise
Understanding of Topic	The team clearly understood the topic fully and presented convincingly	The team clearly understood the topic and presented with ease	The team understood the main points of the topic and presented those well	The team did not exhibit an adequate understanding of the topic
Respect for Other Team	Showed high respect for other team in language, responses, and body language	Showed good respect for other team in language, responses, and body language	Showed moderate respect for other team in language, responses, and body language	Language, responses, and body language were consistently disrespectful

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JOURNAL RESPONSE AND COMPREHENSION RUBRIC

Use this rubric to assess students' abilities to complete the journal activities assigned for this lesson. Share this assessment with students prior to completing the journal-writing lesson so they will understand how they will be assessed. You can also use the rubric as a basis for discussion and feedback with each student.

Student name: _____

Date: _____

1. The student writes journal responses in complete sentences. _____
2. The student writes three or more sentences to answer questions. _____
3. The student responds to questions by self-questioning, retelling, predicting, _____
4. The student's experiences and opinions are clear. _____
5. The student works with a peer to share journal responses and to develop a combined response when requested. _____

Scale:

Excellent 4	Very Good 3	Fair 2	Poor 1
The student completes the task with no major errors. The student demonstrates a full understanding of the concepts.	The student completes the task with only a few major errors and some minor errors. The student demonstrates a strong understanding of the concepts.	The student fails to complete the task with some major errors and many minor errors. The student has difficulty understanding the concepts.	The student fails to complete the task. The student does not understand the concepts.

Include anecdotal notes in the space below:

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Children's Literature

Primary School Mathematics

CHILDREN'S LITERATURE FOR MATHEMATICS

TITLE	AUTHOR	ISBN NUMBER
Two of Everything	Lilly Toy Hong	0-8075-8157-7
The Crayon Counting Book	Pam Munoz Ryan and Jerry Palotta	8-88106-953-1
The M& Ms Counting Book	Barbara Barbieri McGarth	0-88106-853-5
Seven Little Hippos	Mike Thaler	0-671-89907-4
Five Little Ducks	Pamela Papacone	1-55858-473-0
Nine O'Clock Lullaby	Marilyn Singer	0-06-443319-6
The Go-Around Dollar	Barbara Johnston Adams	0-02-700031-1
The Very Hungry Caterpillar	Eric Carle	0-399-20853-4
Ten Black Dots	Donald Carews	0-688-13574-9
What Comes in 2's, 3's and 4's?	Suzanne Aker	0-671-79247-4
The King's Chessboard	David Birch	0-14-054880-7
Sea Squares	Joy Hulme	1-56282-520-8
Frog Counts To Ten	John Lieber	1-56294-698-6
Clocks and More Cocks	Pat Hutchins	0-689-71769-5
Monster Money Book	Lareen Leedy	0-8234-0922-8
2x2= Boo	Lareen Leedy	0-8234-1190-7
The Greedy Triangle	Marilyn Burns	0-590-48991-7
GrandfatherTang's Story	Ann Tompert	0-517-57487-X
A Quarter From The Tooth Fairy	Caren Holtzman	0-590-26598-9
Bat Jamboree	Kathi Appelt	0-688-13883-7
Anno's Counting Book	Mitsumasa Anno	0-06-443123-1
Counting on Frank	Roger Clement	0-8368-0358-2
Seven Blind Mice	Ed Young	0-590-46971-1
Counting by Kangaroos	Joy N. Hulme	0-7167-6602-7
Sea Sums	Joy N. Hulme	0-7868-0170-0
Mother Goose Math	Emily Boland	0-670-87569-4
So Many Circles, So Many Squares	Tana Hoban	0-688-15165-5 TR
Spaghetti and Meatballs for All	Marilyn Burns	0-590-94459-2

CHILDREN'S LITERATURE FOR MATHEMATICS

TITLE	AUTHOR	ISBN NUMBER
In The Next Three Seconds	Rowland Morgan	0-525-67551-5
The Shape of Things	Dayle Ann Dobbs	1-56402-698-1
Anno's Counting House	Mitsumasa Anno	0-399-20896-8
Math Counts Length	Henry Pluckrose	0-516-45453-6
Five Little Monkeys Jumping On a Bed	Eileen Christlow	0.395-55701-1
Five Little Monkeys Sitting in a Tree	Eileen Christlow	0-395-66413-6
A Remainder of One	Elinor J. Pinczes	0-395-69455-8
Notorious Numbers	Paul Giganti, Jr.	1-56785-006-5
10 For Dinner	JoEllen Bogart	0-590-73173-4
Each Orange Had 8 Slices	Paul Giganti, Jr.	0-688-13116-6
How Big Is a Foot	Rolf Myller	0-440-40495-9
Math Counts Weight	Henry Pluckrose	0-516-45460-9
Math Counts Pattern	Henry Pluckrose	0-516-45455-2
Math Counts Sorting	Henry Pluckrose	0-516-45458-7
Even Steven and Odd Todd	Kathryn Cristaldi	0-590-22715-7
Harriet's Halloween Candy	Nancy Carlson	0-87614-850-X
The Button Box	Margarette S. Reid	0-14-055495-5
From One to One Hundred	Teri Sloat	0-14-055643-5
A Grain of Rice	Helena Claire Pittman	0-553-15986-0
How The Second Grade Got \$8,205.50 to Visit the Statue Of Liberty	Nathen Zimelman	0-8075-3431-5
Neighborhood Soup	JoAnne Nelson	0-8136-4266-3
Ten Sly Piranhas	Victoria Chess	0-8037-1200-6
Sadako and the Thousand Paper Cranes	Eleanor Coerr	0-440-47465-5
The Paper Crane	Molly Bang	0-688-07333-6
Anno's Mysterious Multiplying Jar	Masaichiro & Mitsumasa Anno	0-399-20951-4
More Than One	Miriam Schlein	0-688-14103-XLE
One Hundred Hungry Ants	Elinor Pinczes	0-395-63116-5
A Giraffe And A Half	Shel Silverstein	0-06-025655-9

CHILDREN’S LITERATURE FOR MATHEMATICS

TITLE	AUTHOR	ISBN NUMBER
17 Kings and 42 Elephants	Margaret Mahy	0-8037-0458-5
How Much Is A Million?	David M. Schwartz	0-590-43614-7
If You Made A Million	David M. Schwartz	0-688-07017-5
Somebody and the Three Blairs	Marilyn Tolhurst	0-531-05876-6
Sadako	Eleanor Coerr, Ed Young	0-399-21771-1
The King’s Commissioners	Aileen Freedman	0-590-48987-9
Half and Half	JoAnne Nelson	0-8136-4311-2
The Great Graph Contest	Loreen Leedy	0-8234-2029-9
How Do You Know What Time it is?	Robert E. Wells	0-8075-7940-8
Fraction Fun	David A. Adler	0-8234-1259-8
Anno’s Mysterious Multiplying Jar	Masaichiro and Mitsumasa Anno	0-6981-1753-0
Remainder of One	Elinor J.Pinczes	1-6182-5077-8
Pigs Will Be Pigs: Fun with Math and Money	Amy Axelrod	0-6898-1219-1
Sir Cumference and the Great Knight of Angleland: A Math Adventure	Cindy Neuschwander	1-5709-1166-5
Fraction Action	Loreen Leedy	9-7808-2341-109-2
The Math Chef	Joan D’Amico and Karen EichDrummond	0-4711-3813-4
The Amazing Impossible Erie Canal	Cheryl Harness	9-7806-8982-584-2
Piece = Part = Portion: Fractions = Decimals = Percents	Scott Gifford	1-58246-102-3
Sir Cumference and the Sword in the Cone: A Math Adventure	Cindy Neuschwandwander	5-709-1601-2
Fair is Fair	Jennifer Dussling	13: 9-7806-1379-279-0
Measuring Penny	Loreen Leedy	0-6702-4133-4
Grandfather Tang’s Story: A Tale Told with Tangrams	Ann Tompert	0-5178-8558-1
The Grape of Math	Greg Tang	0-4392-1042-9
Keep Your Distance!	Gail Herman	9-7806-1339-333-1
One is a Snail: Ten is a Crab	April Pulley Sayre	9-7807-6362-631-0
Go Fractions!	Judith Bauer Stamper	9-780-4484-3113-0
Hottest, Coldest, Highest, Deepest	Steve Jenkins	0-6184-9488-X

Materials List

Primary School Mathematics

Grades 1-3

**PRIMARY SCHOOL MATHEMATICS
MATERIALS LIST
GRADE 1**

The following is a list of materials that every grade 1 classroom teacher should have access to. Ultimately, we should strive to have each grade 1 classroom equipped with these materials.

QUANTITY	MATERIALS	QUANTITY	MATERIALS
1 000	Snap blocks, linking cubes, or Unifix cubes		Judy clocks (teacher demonstration clock and 15 mini clocks)
4	Buckets of 2-colour counters (200 per bucket)	3	Sets of solid shape
	Number charts (100,99,1-20 with quantity)*	15*	Sets of attribute block
	Base ten models		Classroom set of 4-function calculators
15	Sets of pattern blocks		Scissors
5	Balance scales		Play money (Bahamian and United States)
	A selection of Math-related children's literature (see appendix)	*	Height charts
*	A set of counters per student	1	Giant set of attribute blocks
15	Thermometers	15	Geoboards with rubber bands
*15	Sets of tangrams	1	Overhead geoboard
1	Overhead set of tangrams	1	Overhead projector
15	Sets of dice *	1	Set of transparent counters for overhead (2 colours)
15	Sets of number cubes	*	Bag of items that can be sorted such as buttons, shells, nuts & bolts, beans
	Metric measuring tapes		1-Inch cubes (500)
	An assortment of Math games	*	Addition
	Dominoes	*	

* These items can be made, collected or obtained inexpensively.

**PRIMARY SCHOOL MATHEMATICS
MATERIALS LIST
GRADE 1**

The following consumables should be in every first grade class every year.

QUANTITY	MATERIALS	QUANTITY	MATERIALS
	Straws, calendars		
	Chart paper		
	Construction paper		
15	Sets of markers	*	
	Crayons, pencils	*	
	Yarn, rope		

* These items can be made, collected or obtained inexpensively.

**PRIMARY SCHOOL MATHEMATICS
MATERIALS LIST
GRADE 2**

The following is a list of materials that every grade 2 classroom teacher should have access to. Ultimately, we should strive to have each grade 2 classroom equipped with these materials.

QUANTITY	MATERIALS	QUANTITY	MATERIALS
1,000	Snap blocks		Judy clocks (teacher demonstration clock and 15 mini clocks)
4	Buckets of 2-colour counters (200 per bucket)	3	Sets of solid shape
	Number charts (100,99,1-20 with quantity)*	15	Sets of attribute block
	Base ten models		Classroom set of 4-function calculators
15	Sets of pattern blocks		Scissors
5	Balance scales		Play money (Bahamian and United States)
	A selection of Math-related children's literature (see appendix)		Height charts
*	A set of counters per student	1	Giant set of attribute blocks
15	Thermometers	15	Geoboards with rubber bands
*15	Sets of tangrams	1	Overhead geoboard
1	Overhead set of tangrams	1	Overhead projector
15	Sets of dice /decks of card	1	Set of transparent counters for overhead (2 colours)
15	Sets of number cubes	*	Bag of items that can be sorted such as buttons, shells, nuts & bolts, beans
	Metric measuring tapes		A Classroom calendar
	An assortment of Math games	*	Addition and subtraction flash cards

**PRIMARY SCHOOL MATHEMATICS
MATERIALS LIST
GRADE 2**

The following consumables should be in every second grade class every year.

QUANTITY	MATERIALS	QUANTITY	MATERIALS
	Straws		Molding clay
	Chart paper		Dried beans
	Construction paper		Paper cups for sorting
15	Sets of markers	*	Old magazines for cut ups
	Crayons, pencils	*	Old catalogues for cut ups
	Yarn, rope		Paper clips

**PRIMARY SCHOOL MATHEMATICS
MATERIALS LIST
GRADE 3**

The following is a list of materials that every grade 3 classroom teacher should have access to. Ultimately, we should strive to have each grade 3 classroom equipped with these materials.

QUANTITY	MATERIALS	QUANTITY	MATERIALS
1,000	Linking cubes, snap blocks or unifix cubes		A classroom calendar
	Play money (Bahamian and United States)	5	Stop watches
*	Fraction circles – one set per student	10	Meter sticks
	Overhead fraction circle set	*15	Geoboards with rubber bands
1	Buckets of 2 colour counters (200 per bucket)	1	Overhead geoboard
4	2-Colour counters for the overhead	1	Overhead calculator (4-function)
	Tangrams- set per student	15	Sets of Cuisenaire rods
*	Set of tangrams for overhead		Base ten blocks
10 of each	Spinners of different types		Class size hundreds chart
	Models of solids		Multiplication chart
*	Judy clocks – 15 individual	*	Numeral cards, word name cards
	Classroom set of 4- function calculators		A selection of children’s literature (see appendix)
1	Overhead projector	*50	Individual counters per student
15	Metric measuring tapes	15	Pairs of dice
3	Balance scales	500	Colour tiles
	An assortment of Math games	*	Addition and subtraction flash cards

**PRIMARY SCHOOL MATHEMATICS
MATERIALS LIST
GRADE 3**

The following consumables should be in every grade 3 classroom.

QUANTITY	MATERIALS	QUANTITY	MATERIALS
*	Empty containers'/ shoe boxes/egg cartons	*	Yarn, string
*	Old calendars/ paper plates	*	Square paper
*	Old catalogues and magazines		Paper clips/paper fasteners

*** These items can be made, collected or obtained inexpensively.**

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Commonwealth of The Bahamas

Ministry of Education

Primary School Mathematics Curriculum Guidelines

Grades: 4-6

**Department of Education
September 2010**

Message from Acting Assistant Director of Education (Science and Technology Section)

What helps students to develop a Mathematical outlook, is the processes to which they are exposed in the classroom. Mathematics, therefore, should not be merely a study of finite answers but rather an application of processes that aid in discovering and learning about the relationship between numbers and the world in which we live.

If our education system is to keep pace with scientific advancement, our students must be exposed to an effective and comprehensive mathematics education programme which presents opportunities for them to become actively involved and at the same time obtain the requisite knowledge, skills and attitudes necessary to compete both locally and globally in a scientific and technological society.

For this to be realized, the development and implementation of model mathematics curricula, strengthening the capacity of teachers and providing adequate science instructional supplies and facilities are paramount.

Mathematics teachers are therefore challenged to inspire, stimulate divergent thinking and provide the means for students to investigate based on what they know as well as what they wish to discover.

With each of us giving of and performing at our best, our students should be able to achieve our goal, which is, to develop competent citizens to provide an efficient and effective workforce needed to advance mathematics careers and professions so as to improve the quality of life for all.

Mr. Hamblin Newbold
Acting Assistant Director of Education
Science and Technology Section

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- Mrs. Lenora Archer (Deputy Director, Curriculum & Instruction)
- Mr. Hamblin Newbold (Acting Assistant Director, Science & Technology Section)
- Dr. Joan Rolle (Coordinator & Education Officer, Primary School Mathematics)
- Curriculum Development Team Members:
 - Mrs. Zelma Albury Senior Mistress, T.G. Glover Primary School
 - Mr. Jermaine Butler Senior Assistant, Naomi Blatch Primary School
 - Ms. Rochelle Coakley Trained Teacher, Albury Sayle Primary School
 - Mrs. Elva McPhee Charles W. Saunders Primary School
 - Mrs. LeAnna Deveaux Miller Trained Teacher, Woodcock Primary School
 - Mrs. Braquelle Newton Trained Teacher, Queen’s College Primary School
 - Mrs. Jennetta Taylor Trained Teacher, Sadie Curtis Primary School
- Mathematics Survey Manager:
 - Ms. Keishla Hunt Trained Teacher, C.W. Sawyer Primary School
- Principals of the schools of the members of the Curriculum Development Team
- Problems of the Day Team Members:
 - Ms. Roberta Bullard Trained Teacher, Uriah McPhee Primary School
 - Ms. Patreece Rahming Trained Teacher, Albury Sayle Primary School
- Vettors:
 - Mrs. Brendamae Adderley Trained Teacher, Stephen Dillet Primary School

Dr. Marcella D. Elliott
Mrs. Marion Campbell Laidley
Dr. Stacy Stubbs

Assistant Professor, Mathematics Education, The College of The Bahamas
Trained Teacher, C. I. Gibson High School
Trained Teacher on Assignment

- Typists:
Mrs. Deborah Stanislaus Higgs
Mrs. Inease Bullard

Executive Officer, Science & Technology Section
Filing Clerk, Science & Technology Section

- Other Contributors:
Mrs. Darnell Adderley
Dr. Brendamae Cleare
Ms. Vernita Davis
Mrs. Lynette Lewis
Ms. Dominique Thompson

Senior Mistress, L. W. Young Junior High School
Dean: Pure and Applied Sciences, College of The Bahamas
Subject Secretary, Examinations and Assessment Division
Statistical Analysis and Software Technology Incorporated (STI) Coordinator
Mathematics Teacher, R.M. Bailey Senior High School

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PHILOSOPHY

Mathematics is a vital component in the development of science, technology, industry, commerce, the day to day living in society/world and is essential to the quality of life of our people.

Mathematics requires thinking, reasoning, and understanding of principles, thoughts, ideas, and patterns in our environment. Therefore, emphasis should be placed in the development of mathematical concepts. Its specific focus is to prepare students to explore, discuss, develop, test, and apply mathematical concepts in the further growth and development of society.

OVERARCHING GOAL

Students will develop self-confidence and display proficiency in logical, critical and analytical reasoning as well as become proficient in the use of technology and other mathematical tools. They will also demonstrate mastery of problem solving, communicating mathematically, working cooperatively, and learning to value mathematics while incorporating classroom experiences with real life situations.

SUB-GOALS

The Mathematics programme, as outlined in the curriculum guidelines, requires that all students in The Bahamas achieve the following:

1. Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.
2. Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.
3. Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.
4. Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.
5. Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.
6. Collect, organize, and analyze data using statistical methods: predict results; and interpret uncertainty-using concepts of probability.

To achieve these sub-goals, all students must have many and varied experiences, through which they read, write, discuss, make conjecture, and test solutions to complex, practical problems.

This curriculum document is intended to foster an understanding of the “whys” of Mathematics as well as appropriately meet the current and future needs of the student population in schools across The Bahamas.

The use of current research in Mathematics and a working knowledge of entry requirements for programmes at The College of The Bahamas and Colleges in the United States, Canada, Great Britain and the University of the West Indies as well as adherence to our own goals, constituted the basis used by curriculum developers to formulate the objectives/content of this document.

It is our intention that teachers and parents use this document to guide their teaching of Mathematics, supplementing it with activities from texts and other resources to help our students attain the goals that are outlined in this document.

MATHEMATICAL EXPECTATIONS GRADES 1-12 A DISCUSSION

In order to understand the expectations of the mathematics curriculum more fully, the curriculum writing team offers the following mathematics processing standards to consider as you strive to reach these goals with your students/children.

1. **Students will become mathematical problem solvers.** Every Mathematics lesson should have some element of problem solving to challenge the students. There are two main types of problems: routine and non-routine. Routine problems are usually application problems and can be solved by applying an operation of a formula. We teach children to reason and think critically with these problems when we work on reading for understanding. Teaching key words such as **‘altogether means to add,’ does not lead to understanding and is an inappropriate problem solving technique.** Asking students to draw a picture of what is happening in the story helps students make connections to the concept of the operations and involves reasoning. Have students apply developing problem-solving strategies as they pose and solve problems and conduct investigations, to help deepen their mathematical understanding.

Non-routine problems tend to be more open-ended, may have more than one answer or solution and usually require a strategy to solve the problem. These problems require reasoning and not simply application of operations. A teacher with a well-balanced mathematics programme uses a combination of problems with his/her students.

2. **Students will be able to communicate mathematically.** In order for students to achieve this goal, they must be encouraged daily to communicate in class through small and large group discussions and writing. Oral and written presentations, creating their own story problems and **explaining HOW they arrived at solutions** are ideal ways to achieve this goal and are methods supported through the activities in this curriculum/resource guide.
3. **Students will develop self-confidence with Mathematics.** In order to develop self-confidence, students and teachers need to have success in Mathematics. Build on your students’ previous experiences and draw on your own.
4. **Students will learn to value Mathematics.** Students will achieve this goal over time if they see the enthusiasm for the subject. School-wide projects such as Math Day or “One Hundred Day” celebrations in primary schools and “Invention Day” in the high schools or national projects like Math at the Mall that will assist in developing this goal. Speakers with jobs that use Mathematics (which is most careers) are also helpful. Finding examples of Mathematics used properly or improperly on TV and in the newspapers is another worthwhile connection.
5. **Students will be able to make connections within the field of Mathematics, and with Mathematics in the real world.** Students should understand Mathematics as a necessary set of skills and concepts for the real world; therefore, teachers are encouraged to integrate Mathematics teaching with other subjects. Also when working with one strand, use skills from other strands. For example, **Statistics and Number Sense blend well together.**
6. **Students will learn to work cooperatively.** Most jobs that require a mathematical background are those where people must collaborate. Therefore, the activities in the curriculum support peer tutoring, cooperative learning, pairing of students, group projects, group presentations and activities in which each student in the class participates.

7. Students will become more proficient in the use of technology and other mathematical tools. While calculator and computers are the primary pieces of technology used in Mathematics, students should also learn how to use the rulers, compasses, protractors and other tools. In addition, students also need to learn which tool is appropriate for a given situation. These learning tools allow students to investigate mathematical ideas and to solve problems.

HOW TO USE THIS GUIDE

Mathematics is a highly interconnected and cumulative subject. The Mathematics curriculum introduces skills and concepts in sequence, which contribute to and serve as building blocks for each other across grade levels. The curriculum also gives focus to important mathematics strands that will prepare students for continued study, and problem solving at school, home, and even work settings. Instead of seeing mathematics as a set of disconnected topics, students should be able to view, understand, and appreciate the relationships among mathematical skills and concepts. When students build connections and skills, their understanding deepens and expands.

Students should have opportunities to learn mathematical skills and concepts as they progress through the grades and as such, should not spend a significant part of their instructional time reviewing mathematics content. Teachers at each grade level should know what mathematics concepts their students have already studied and will study in future grades to ensure that topics and skills taught at the present grade level are aligned with the past and perceived mathematical experiences.

The objectives at each grade level are divided into 6 strands: **Number and Number Sense, Patterns, Functions and Algebra; Computation and Estimation, Measurement, Geometry, and Statistics & Probability.**

While each of the six strands deals with a different area of mathematics at the respective grade levels, objectives from the strands should be integrated. For example, while teaching computation, it is natural to look at patterns and concepts from number sense. While teaching statistics, it is natural to ask questions that will require students to compute data presented in graph form.

In the Scope and Sequence, there are acronyms to advise teachers when a skill is to introduced, developed, maintained, and advanced. The letter I = Introduce, D= Develop, M= Maintain, and A= Advance. Following the Scope and Sequence is a suggested pacing guide for each grade level. The pacing guide is to assist teachers in planning for the year in order to include all of the content necessary for meeting the standards in teaching mathematics. Teachers are reminded that there are at least 7 periods of Mathematics scheduled on the Time Table per week. Using the scheduled time wisely, will enable teachers to complete the content at their grade level. At the beginning of each Scope of Work are essential questions that will guide the teaching and learning of the strands. At the end of the strands, students should be able to answer all of the questions.

Teachers are not expected to teach the objectives in the order presented. Instead, teachers are encouraged to take the objectives and work them into their yearly plan in a manner that integrates the strands with one another, and with other subjects. There are an unlimited number of combinations and each teacher should put together lessons that allow students to make sense of the material presented. If students attain the learning objectives in the time frame given, then move on. If not, move on and use other avenues in the document that will allow students to acquire the knowledge and skills.

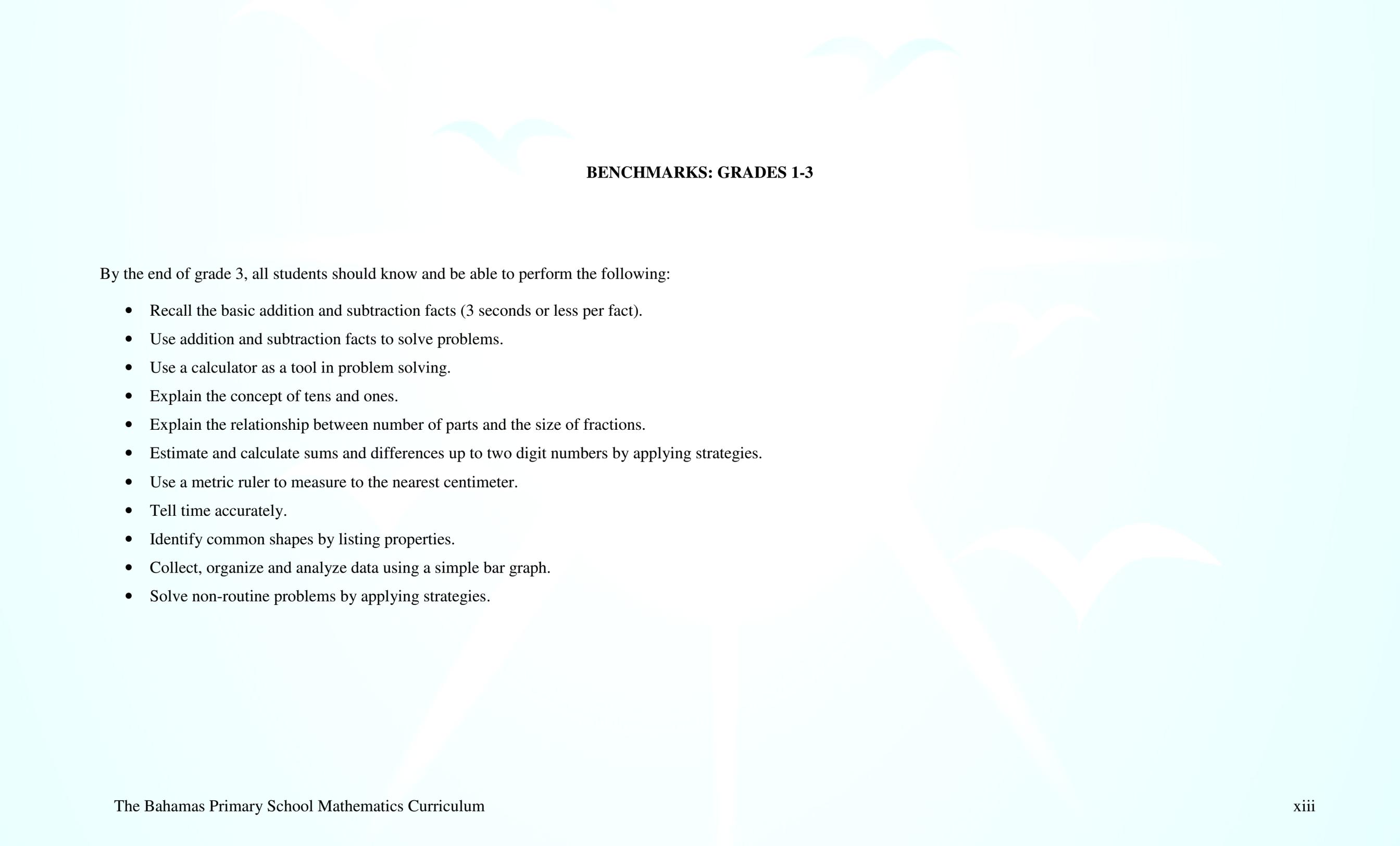
Teachers of grades 4-6 could begin the academic year with another strand other than Number and Number Sense if students would have been exposed to the skills earlier. During the period of 2005-2010, it has been proven (by the Primary Mathematics Unit) that students in the upper grades enjoy Measurement and Geometry Strands at the beginning of the academic year.

It is not feasible to list every objective in the pages of The Scope of Work of each strand in grades K-7 of the Mathematics Curriculum. Therefore, the Scope of Work for the year in which it is introduced at subsequent grade levels is reinforced and extended.

THEORETICAL FRAMEWORK

The major theoretical framework that guides the Primary Mathematics Curriculum is the constructivist theory. Constructivism emphasizes a hands-on approach to mathematics where students are more actively involved with teachers in creating new meanings. Additionally, constructivism often utilizes collaboration and peer criticism as a way of provoking students to reach a new level of understanding. During instruction, teachers focus on having students make connections between facts and developing new understanding. Further, teachers modify their teaching strategies to students' responses which encourage students to analyze, interpret, and predict information. Teachers depend on open-ended questions for discussions and encourage extensive dialogue among students. The curriculum promotes the following:

- Acceptance of student independence and initiative
- Utilization of manipulatives, interactive, and physical materials.
- Use of cognitive terminology by teachers such as "classify," "analyze," and "create" when planning.
- Responses of students to drive lessons, shift instructional strategies, and alter content
- Inquiry concerning students' understanding of concepts before sharing their own understanding of those concepts
- Dialogue of students with the teacher and with one another
- Inquiry by asking thoughtful, open-ended questions and encourage students to ask questions of each other
- Elaboration of students' initial responses
- Allowance for wait time after posing questions
- Time for students to construct relationships and create descriptions.



BENCHMARKS: GRADES 1-3

By the end of grade 3, all students should know and be able to perform the following:

- Recall the basic addition and subtraction facts (3 seconds or less per fact).
- Use addition and subtraction facts to solve problems.
- Use a calculator as a tool in problem solving.
- Explain the concept of tens and ones.
- Explain the relationship between number of parts and the size of fractions.
- Estimate and calculate sums and differences up to two digit numbers by applying strategies.
- Use a metric ruler to measure to the nearest centimeter.
- Tell time accurately.
- Identify common shapes by listing properties.
- Collect, organize and analyze data using a simple bar graph.
- Solve non-routine problems by applying strategies.

BENCHMARKS: GRADES 4-6

By the end of grade 6, all students should know and be able to perform the following:

- Recall basic multiplication and division facts (3 seconds or less per fact)
- Estimate and calculate whole number and decimals products and quotients by applying strategies.
- Estimate and calculate fraction sums, differences, and products by applying strategies.
- Explain the relationship among whole numbers, fractions, decimals, and percents.
- Estimate and measure length, volume, area, mass, and temperature in metric units.
- Classify types of triangles, quadrilaterals, and angles by properties.
- Use a fraction-type calculator as a tool.
- Collect, organize and analyze data using several types of graphs and measures of central tendencies (mean, median, mode, and range)
- Make reasonable predications about the outcomes of an event using simple probability rules.

DEFINITION OF CURRICULUM TERMS

Overarching Goal	Outlines the intended purpose of the curriculum document. It defines the overall outcome of the curriculum, in this case the Primary Mathematics Curriculum.
Sub-goals	Indicate the main objective for the various strands of the curriculum.
Standards	Outline learner outcomes and expectations for each sub-goal. They indicate student progression from one attainment level to another.
Scope and Sequence	A map outlining the objectives for each level, showing the progression and overview of the work to be accomplished.
Scope of Work	Develops each objective with suggested content, activities, assessment and resources to facilitate and enhance the teaching/learning process.
Skills	Learned capacity to carry out pre-determined results often with the minimum time. The following skills are central to Mathematics: researching, evaluation, analysis, synthesis, application, comparing and contrasting, role-playing, interpreting, and calculating.
Concepts	Scheme or plan for Mathematics. Key mathematical concepts include addition, subtraction, division, multiplication, and fractions,
Attitudes	Way a person views something or tends to behave towards it. Mathematical attitudes include showing confidence in using mathematics, perseverance in solving problems, a positive attitude, and a willingness to work. These attitudes will enable success in the teaching and learning of mathematics.
Content Standards	Cover what students are to learn in various subject areas, such as Mathematics and Science.
Performance Standards	Specify what levels of learning are expected.
World-class Standards	Content and performances that are expected of students in other industrialized countries. This term is also attached to the movement in the United States to bring U.S. students' academic achievement and knowledge on par with students' accomplishments in the other industrialized countries.
Essential Questions	Develop foundational understandings. They provide the fundamental organizing principles that bound an inquiry and guide the development of meaningful, authentic tasks. Essential questions have several key components:

- Attempts to answer essential questions and allow people to explore the connection between their personal, individual, unique experience of the world and its exterior, objective, held-in-common dimensions. In exploring essential questions together, people are able to find expression for their own strongest gifts and interests at the same time that they are able to establish a sense of community with others.
- Essential questions allow us to explore what knowledge is, how it came to be, and how it has changed through human history.
- An essential question is always posed at the boundary of the known and the unknown. While permitting fruitful exploration of what others before us have learned and discovered, attempts to answer an essential question open up mysteries that successively reveal themselves the more we come to "know".
- An essential question reaches beyond itself. It is embedded in ideals of freedom, strength, and possibility that permit people to come-to-know without becoming trapped in constructs that are unfair or no longer useful. Essential questions arise from an implicit commitment to human efficacy: to a belief that individuals can make a difference, that knowledge can both be acquired and changed.
- An essential question engages the imagination in significant ways. Without imagination, we could not ask the questions that drive science forward. We would have no art, no stories, no mathematics, no philosophy. Moreover, it is questions that spark the imagination that permit young and old to journey together into unknown realms. Imagination knows no bounds, no restrictions; nor do the questions we pose when we cultivate our powers of imagination. An essential question that arises from imaginative engagement is an important way to bring teacher, student, and subject matter together in ways that enrich all three.

DEFINITION OF STRANDS

The National Council of Teachers of Mathematics (NCTM) proposed six strands/standards that are content oriented. For the content standards/strands, the goals are further broken down into objectives.

Number and Number Sense: Deals with the proficiency of numbers and understanding of how numbers operate. It involves an understanding of how different types of numbers, such as fractions, decimals, and percent are related to each other, and how each can best be used to describe a particular situation. Further, it includes the more traditional category of school mathematics curriculum called numeration (process of counting or numbering) and thus includes the important concepts of place value, number base (decimal, multiple, binary) magnitude, and approximation and estimation. Knowing how to represent numbers, recognizing 'how many' are in a group, and using numbers to compare and represent, paves the way for grasping number theory, place value and meaning of operations and how they relate to one another. This strand emphasizes the understanding of numbers, number patterns, counting, and estimation. Such understanding is best developed through purposeful, concrete experiences and the use of manipulatives.

Patterns, Functions, and Algebra: Algebra is the ability to sort, order objects or numbers, and recognize and build on simple patterns. Algebra provides the language through which one communicates the patterns in mathematics. Algebra is more than a set of procedures for manipulating symbols. It provides a way to explore, analyze, and represent mathematical concepts and ideas. Additionally, it describes relationships that are purely mathematical or ones that arise in real-world phenomena and are modeled by algebraic expressions. From the earliest age, students should be encouraged to investigate the patterns that they find in numbers, shapes, and expressions, and, by doing so, make mathematical discoveries. They should have opportunities to analyze, extend, create a variety of patterns, use pattern-based thinking to understand and represent mathematical and other real-world phenomena. The function concept is one of the most fundamental unifying ideas of modern mathematics. Students begin their study of functions in the primary grades, as they observe and study patterns. As students grow and their ability to abstract matures, students form rules, display information in a table or chart, and write equations which express the relationships they have observed. In high school, they use the more formal language of algebra to describe these relationships. Learning algebra helps students make connections in varied mathematical representations, mathematics topics, and disciplines that rely on mathematical relationships.

The Pattern, Functions, and Algebra strand develops student ability to recognize, represent, and solve problems involving relations among quantitative variables (unknown letter). The key algebraic models in the curriculum are linear, exponential, power, polynomial, logarithmic, rational, and periodic functions. Each algebraic model is investigated in four linked representations - verbal, graphic, numeric, and symbolic - with the aid of technology. Attention is also given to modeling with systems of equations, both linear and nonlinear, and to symbolic reasoning and manipulation.

Computation and Estimation: Estimation is a process that is used constantly by mathematically capable adults, and one that can be easily mastered by children. It involves an educated guess about a quantity or an intelligent prediction of the outcome of a computation. The growing use of calculators makes it more important than ever that students know when a computed answer is reasonable. The best way to make that determination is through the use of strong estimation skills. Equally important, is an awareness of the many situations in which an approximate answer is as good as, or even preferable to an exact one. Students can learn to make these judgments and use mathematics more powerfully as a result.

Geometry: Stresses the development of students' spatial awareness through active involvement in working with two- and three-dimensional shapes. The primary goal of the geometry strand is to develop visual thinking and student ability to construct, reason with, interpret, and apply mathematical models of patterns in visual and physical contexts.

Geometry is a natural place for the development of students' reasoning and justification skills. The focus is on describing patterns with regard to shape, size, and location; representing patterns with drawings or coordinates; predicting changes in shapes under geometric transformations; and organizing geometric facts and relationships through deductive reasoning. Geometric ideas are useful in representing and solving problems in other areas of mathematics and in real-world situations. Geometric representations can help students make sense of area and fractions. Bar graphs and scatter plots (a graph of plotted points that show the relationship between two sets of data) can give insights about data.

Measurement: Accentuates the investigation of concepts such as length, area, volume, capacity, mass, time, and temperature. Students begin to learn how to measure by working with non-standard units and then progress to using the basic metric and customary units. Students also become familiar with telling and computing elapsed time (the amount of time that has passed since a particular process started). Telling time and using money link to an understanding of the number system and represent an important life skill. Measurement offers an opportunity for learning and applying other mathematics skills, including number operations, geometric ideas, statistical concepts, and functions. It highlights connections within mathematics and connections between mathematics and areas outside mathematics, such as Social Studies, Religious Studies, Science, Music, Art, and Physical Education.

Statistics and Probability: Emphasizes the collection, organization, and interpretation of data. The primary role of the statistics and probability strand is to develop students' ability to analyze data intelligently, to recognize and measure variation, and to understand the patterns that underlie probabilistic situations. The ultimate goal is for students to understand how inferences can be made about a population by looking at a sample from that population. As children collect information about the world around them, they will find it useful to display and represent their knowledge in the form of tables and graphs. Utilizing probability, students need to understand the fundamental concepts so that they can interpret weather forecasts, avoid unfair games of chance (gambling, buying raffle tickets), and make informed decisions about traveling or going on a field trip. They should regularly be engaged in predicting and determining probabilities, often based on experiments (like flipping a coin 100 times), but eventually based on systematic counting strategies. High school students should use probability models and solve problems involving compound events and sampling. Probability is also linked to other mathematical content areas such as counting techniques (number and operation), ratios of areas and volumes (geometry), and relationships between functions and the area under their graphs (algebra, data analysis).

PROBLEM SOLVING

FOUR PHASES IN SOLVING A PROBLEM

In solving any problem, it helps to have a working procedure. You might want to consider this four-step procedure: *Understand, Plan, Try It, and Look Back.*

- **Understand:** Before you can solve a problem you must first understand it. Read and re-read the problem carefully to find all the clues and determine what the question is asking you to find.

What is the unknown?

What are the data?

What is the condition?

- **Plan:** Once you understand the question and the clues, it's time to use your previous experience with similar problems to look for strategies and tools to answer the question.

Do you know a related problem?

Look at the unknown! And try to think of a familiar problem having the same or a similar unknown?

- **Try It:** After deciding on a plan, you should try it and see what answer you come up with.

Can you see clearly that the step is correct?

But can you also prove that the step is correct?

- **Look Back:** Once you've tried it and found an answer, go back to the problem and see if you've really answered the question. Sometimes it's easy to overlook something. If you missed something check your plan and try the problem again.

Can you check the result?

Can you check the argument?

Can you derive the result differently?

Can you see it at a glance?

Problem Solving Skills in Mathematics

- Estimation and approximation
- Mental calculation
- Communication
- Use of mathematics tools
- Arithmetic manipulation
- Algebraic manipulating
- Handling data
- Choose the Operation
- Draw Conclusions
- Estimate Exact Answer
- Interpret the Remainder
- Make Generalizations
- Solving Multi-Steps Problems
- Reasonable Answers
- Sequence Events
- Too Much/Too Little Information
- Use a Table/Graph
- Identifying Relationships

Problem Solving Strategies

- Draw a Picture
- Make a Table
- Look for a Pattern
- Make an Organized List
- Try, Check, Revise
- Write a Number Sentence
- Act it Out
- Use Reasoning
- Work Backward
- Solve a Simpler Problem
- Make a Graph

BEST PRACTICES IN IMPROVING STUDENT ACHIEVEMENT IN MATHEMATICS

Best practices in mathematics focus on allowing students to be actively *doing mathematics* so they can build and enhance their understanding of mathematical ideas. The following links will provide more information on current NCTM math standards and best practices in mathematics. Programs should provide a curriculum that is based on research findings on how best to improve student achievement in mathematics. Those findings are summarized by Grouws and Cebulla in an ERIC Digest, January 2002. Programmes should be designed to offer supplemental instruction, which expands students' exposure to mathematical skills and concepts. Strong correlations between opportunity to learn (OTL) and the mean of student achievement scores is documented in several international studies cited by Grouws and Cebulla. Other best practices identified in this study include:

- Daily problem-solving inclusive of multiple steps problems
- Opportunities to discover and invent new knowledge
- Opportunities for student interaction and discussion
- Whole-class discussion following individual and group work
- Instructional focus on number sense
- Provision of differentiated classroom instruction using a variety of instructional methods and intervention.
- Use of manipulatives and technology
- Use of cooperative learning strategies/peer tutoring
- Integration of mathematics strands and other subjects
- Use of probing and questions skills
- Lessons that are student oriented
- Link to prior knowledge
- Fostering active inquiry and supportive interaction

- Emphasizing the real life relevance of Mathematics
- Monitoring students' progress and revise their instructional plan as needed.
- Allowing students to reason mathematically and to communicate and justify their thinking.
- Drawing on students' discovery and creativity to keep them interested.

Suggested Strategies to Improve Numeracy in the Primary School

- Give pre and post tests from grades 1-6. Pre-tests are given at the beginning of the academic year and are used to assess and group students according to their needs and direct teaching practices. Teachers of grade 4 should use the Grade Level Assessment Test (GLAT) results to identify weaknesses and strengths of their students.
- Teach to the needs of each group of students during guided mathematics activities.
- Integrate mathematics across the curriculum.
- Give tests at the end of a concept or unit. This will identify students learning and the effectiveness of teacher strategies/practices
- Give post-test at the end of the school year to determine students' successes.
- Record results from the assessments in teachers' Mark Book, portfolios, and formal reports.
- Host Mathematics competitions to give students the opportunity to compete with their peers and solidify skills and concepts taught.
- Teacher training/upgrading in mathematics instruction.

ASSESSMENT STRATEGIES

The Assessment Principle

Assessment should support the learning of mathematics, furnish useful information to both teachers and students, and be more than merely a test at the end of instruction to gauge learning. It should be a part of instruction that guides teachers and enhances students' learning.

Teachers should continuously gather information about their students through questions, interviews, writing tasks and other means. They can make appropriate decisions about such matters as reviewing materials, reteaching a difficult concept, or providing something more or different for students who are struggling or need enrichment.

Assessment is the standardized process of measuring students' performance to gather information for future developmental use. At the primary school level, National Examinations are used to assess the status of the CURRICULUM to gather qualitative information that pinpoint and diagnose strengths and weaknesses. As the examinations are diagnostic in nature, for the students to excel, they must initially be exposed to all the content areas across each strand of the Mathematics curriculum as this aspect of teaching and learning is critical to their overall success. Assessment should focus on understanding as well as procedural skills. Students learn in different ways, therefore, multiple ways of assessment should be utilized.

Secondly, students must become confident in their ability to apply the skills across all of the cognitive levels of learning. Alexander Bloom (1956), identified six levels within the cognitive domain which must be acquired if students are going to fully develop their critical thinking skills. These levels range from the simple recall or recognition of facts, as the lowest level to the analyzing and judgment of material that is classified as the highest level. The levels and accompanying skill structures are as follows:

Knowledge: Is remembering previously learned material or information. At this level, all that is required is the recall or bringing to mind the information that was previously taught.

Comprehension: Is the ability to grasp the meaning of material. This skill assesses the students' ability to effectively manipulate information. Mastery of this skill is shown by the students ability to effectively:

- translate material from one form to another (words to numbers etc.),
- interpret material (explain or summarize procedures etc.),
- estimate future trends (predicting consequences or effects and/or draw mathematical conclusions).

Learning outcomes at the comprehension level go one step beyond the simple remembering of material, and represent the lowest level of understanding.

Application: Is the ability to use previously learned material or information in new and or concrete situations. This includes the application of such things as:

- rules

- methods
- concepts
- principles
- laws
- theories

Learning outcomes in this area require a higher level of understanding than those under comprehension.

Analysis: Is the ability to break down material into its component parts so that its organizational structure may be understood. This includes:

- the identification of the individual parts of geometrical shapes, structures and units;
- the analysis of the relationships between parts and of parts to the whole structure or unit;
- recognition of the organizational principles involved in the operation of the individual parts and the structure or unit as a whole.

Learning outcomes here represent a higher intellectual level than comprehension and application because they require an understanding of both the content and the structural form of the material presented.

Synthesis: Is the ability to put parts together to form a new whole. This involves the:

- assembling or creating of a graph, table, geometric shape, patterns etc.
- organizing or arranging of a set of objects with abstract relations (scheme for classifying information etc.).
- putting together a plan of operation (research proposal)
- production of a speech, play, recital etc.

Learning outcomes in this area stress creative behaviors, with major emphasis on the formulation of new patterns or structures.

Evaluation: Is the ability to judge the value of material (statement, novel, poem, research report etc.) for a specific purpose. The judgments are to be based on definite criteria which the student may determine or be given. Learning outcomes in this area are highest in the cognitive hierarchy because they contain elements of all the other categories, plus conscious value judgments based on clearly defined criteria. Additionally, national assessments expose students to various types of questions. Hence, students must develop an appreciation for answering appropriately different types of questions among which could be found the following types of questions:

- **MULTIPLE CHOICE QUESTIONS:** Questions of the four option type that consist of a stem with one correct answer and three distracters.
- **MATCHING QUESTIONS-ONE-TO-ONE PAIRING:** Column aligned questions in which students must match options in column 'A' with those in column 'B'.

- **SHORT ANSWER / COMPLETION QUESTIONS:** Questions that require the completing of a statement or question using a single word or a well-constructed sentence, or a multi-faceted mathematical process
- **STRUCTURED QUESTIONS:** Questions in which sub-question branches follow from a common stem with the easiest question first and the difficulty level increasing with the progression of the structure. These would include such skills as the interpretation of information from graphs and follow through questions.
- **FREE RESPONSE (ESSAY) QUESTIONS:** Questions that require explanation, discussion or calculation on material for which the examiner has not provided a pattern of response. In their response to this type of question, the students are expected to demonstrate communication, planning and organizational skills.

Exposure to the various questioning types allows for an in-depth assessment of students knowledge on the various subject matters as well as their ability to apply critical thinking skills. Further, National Assessments promote the use of timed tests. As success in this mode requires discipline on the part of the students, continual practice in working with timed tests and quizzes throughout the school year will provide students with regular practice in working within the allocated time frames for the various components of the examination. Given continued exposure to all curriculum content areas, the different levels of the assessment objectives, the various questioning techniques and timed tests/ quizzes on a continual basis, students will be equipped with the skills and practices that are necessary to prepare them mentally and physically to confidently write National Examinations.

PROBLEMS OF THE DAY (POD)

Students of all ages should be given the challenge to solve problems in mathematics class everyday. It is only through solving problems that they will become proficient problem solvers. Therefore, to help teachers find appropriate grade level problems, in the appendix is a collection of about 100 problems for your grade level. **Some problems have the answers and for others you have the opportunity of working them out with your students.**

How you use these problems is up to the individual teacher. Below are a few suggestions:

- i. Post a Problem of the Day (POD) in your classroom every morning and let students work on it individually or in groups throughout the day and for homework. The next day, discuss the previous day's solution and post a new POD.
- ii. Start each mathematics class with a POD. Let student work on it when they finish assignments. Discuss solutions at the end of the class.
- iii. Set aside 15 minutes per day for students to work in assigned groups on the POD.
- iv. Post a POD every other day and let students work on it after they complete other class assignments
- v. Assign a POD for homework and give extra credit to students who show evidence of attempting a solution.
- vi. Post the same POD for an entire grade level every day or every other day. Let students collect points for every problem well attempted. Which class gathers the most points?
- vii. Open every faculty meeting or department meeting with a POD just for fun!

Problem of the Day

Give students a problem daily. Instead of solving the problem, break down the task. This makes it easier to model all steps in the problem-solving process. Students can

- tell what the question is asking them to do
- underline key words in the question that indicate the mathematical operation to be performed
- delete extraneous information
- identify the parts in the question
- find the best problem-solving strategy and explain why it is the best
- describe two different ways a problem could have been solved
- have students develop questions from graphic information

- share student-generated questions
- ask other students to solve the problem and justify their answers

***NOTE:** No matter how you use your PODs, it is imperative that there be a class discussion of the solution(s) where students present solutions with justifications.

****NOTE:** It is fun to solve problems with the class when you do not know the solution in advance Try it!

Commonwealth of The Bahamas

Ministry of Education

Scope and Sequence

**Primary School Mathematics
Grades K-7**

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM
NUMBER AND NUMBER SENSE**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1. Identify and count “how many” in sets of objects.	I	D	D	M	A	A	M	A
2. Identify , count, write, and associate numerals and number words.	I	D	D	M	A	A	M	A
3. Connect number words and numerals to the quantities they represent (using various physical models).	I	D	D	M	A	A	M	D
4. Identify, write, and count using Roman Numerals.				I	D	A	D	M
5. Develop a sense of the position and magnitude of whole numbers and differentiate between the various classes of numbers e.g. cardinal and ordinal numbers, odd and even numbers, prime and composite, and triangular numbers etc.			I	D	D	D	D	M
6. Identify various representations of the same number /quantity and generate them by composing, and decomposing numbers.		I	D	D	M	M	M	A
7. Identify and use number values and place values within the base-ten number system.	I	D	D	A	A	D	M	M
8. Represent and compare whole numbers, decimals, and percents.				I	D	D	D	M
9. Identify and represent commonly used fractions such as $\frac{1}{4}$, $\frac{1}{3}$, and $\frac{1}{2}$. and use models, benchmarks, and equivalent forms to judge the size of fractions.		I	D	D	M	M	A	M
10. Relate/name fractions as parts of unit wholes, as parts of a collection, as locations on number lines, and as divisions of whole numbers.			I	D	A	D	M	D
11. Identify, name/write equivalent forms of commonly used fractions, and decimals, and find percentages of different amounts.				I	D	D	A	M
12. Compare and order fractions, decimals, and percents and find their approximate locations on a number line.				I	D	D	A	M

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM
NUMBER AND NUMBER SENSE**

Sub-goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions (**Continued**)

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
13. Simplify and convert fractions, decimals and percents.				I	D	A	A	M
14. Identify, write, and convert improper fractions to mixed numbers.				I	D	D	A	M
15. Compare and order fractions, decimals, and percents.				I	D	D	M	M
16. Explain the meaning of addition, subtraction, multiplication, and division and identify them with the specific vocabulary of each rule of number.	I	D	D	A	A	D	M	M
17. Use multiplication arrays to differentiate between various multiplication problems.			I	D	D	A	M	M
18. Explore positive and negative integers on a number line.							I	D
19. Identify and differentiate between prime and composite numbers.						I	D	D
20. Find the LCM and HCF of numbers.						I	D	D
21. Identify and use ratios and proportions to represent quantitative relationships.				I	D	A	A	D
22. Use appropriately exponential notations.						I	D	D
23. Describe integers, represent, and compare quantities with them.						I	D	D
24. Identify squares and square roots of numbers.						I	D	D
25. Use factors, multiples, prime factorization to solve problems.				I	D	A	M	M

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM**

PATTERNS, FUNCTIONS, AND ALGEBRA

Sub-goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1. Sort, classify, and order objects by size, amount, and other properties.	I	D	A	A	M	D	D	A
2. Identify, describe, and extend various patterns such as sequences of sounds, shapes, or simple numeric patterns, and analyze how both repeating and growing patterns are generated.	I	A	A	A	M	D	D	A
3. Use concrete, pictorial, and verbal representations to develop an understanding of invented and conventional symbolic notations.				I	D	D	M	A
4. Model situations that involve addition and subtraction of whole numbers, using objects, pictures, and symbols.				I	D	D	M	A
5. Identify and construct rectangular, triangular, oblong, L-shaped numbers.					I	D	D	M
6. Describe qualitative change using various attributes	I	D	D	M	A	A	D	D
7. Describe, extend, and generalize about geometric and numeric patterns.		I	D	M	A	A	D	D
8. Represent and analyze patterns and functions using words, tables, and graphs.			I	D	M	A	A	D
9. Identify and illustrate general principles and properties as commutative, associative and distributive, and use them to compute with whole numbers.				I	D	D	M	M

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM**

PATTERNS, FUNCTIONS, AND ALGEBRA

Sub-goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results **(Continued)**

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
10. Represent a variable as an unknown quantity using a letter or a symbol.						I	D	D
11. Express Mathematical relationships using equations						I	D	D
12. Model problem situations with objects and use representations such as graphs, tables, and equations to draw conclusions		I	D	D	M	A	A	D
13. Represent, analyze, and generalize a variety of patterns with tables, graphs, and words.		I	D	D	A	A	D	M
14. Use symbolic algebraic notations to represent situations and solve problems.							I	D

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM
COMPUTATION AND ESTIMATION**

Sub-goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1. Add and subtract whole numbers, decimals, and money, and explain their effects.		I	D	A	A	A	M	M
2. Estimate and round numbers and use the strategies to add, subtract, multiply, and divide whole numbers, decimals and money.				I	D	A	M	M
3. Explain and demonstrate situations that entail multiplication and division, such as sharing equally and equal groupings of objects. .				I	D	D	M	A
4. Develop and use strategies for whole–number computations, with focus on addition and subtraction.		I	D	M	A	M	M	M
5. Use a variety of methods and tools to compute, including: objects, mental computation, estimation, paper, pencil, and calculators.		I	D	M	A	M	M	A
6. Use the divisibility rule for division.						I	D	M
7. Explain how to multiply and divide whole numbers.			I	D	D	M	A	M
8. Describe and create relationships between operations, using division as the inverse of multiplication, to solve problems.			I	D	D	M	A	M
9. Explain and use properties of operations, such as the distributives of multiplication over addition.						I	D	D
10. Develop fluency with basic number combinations for multiplication and division, and use these combinations to compute mentally related problems such as 30 X 50.				I	D	M	A	A
11. Develop fluency in adding, subtracting, multiplying and dividing whole numbers.				I	D	M	M	A
12. Choose and use appropriate strategies to estimate the results of whole number computations and judge the reasonableness of each result.					I	D	M	A

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM**

COMPUTATION AND ESTIMATION

Sub-goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division and multiplication (**Continued**).

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
13. Apply and use strategies to estimate computations involving fractions and decimals in situations relevant to students' experience.				I	D	A	D	M
14. Use visual models, benchmarks, and equivalent forms to add and subtract commonly used fractions and decimals.				I	D	M	M	A
15. Select appropriate methods and tools for computing whole numbers: mental computation, estimation, use of calculators, paper and pencil regarding the context and nature of the computation.			I	D	M	A	A	M

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM**

MEASUREMENT

Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

Key: I = Introduce, D = Develop, M = Maintain, A = Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1. Explain and model attributes of length, area, weight, volume, and size of angle and select the appropriate type of unit for measuring.	I	D	D	A	A	D	M	M
2. Identify the attributes of length, volume, weight, area, perimeter and time, and compare and order objects according to these attributes	I	D	D	A	A	D	M	M
3. Measure objects using non-standard units e.g. multiple copies of units of the same size, such as paper clips laid end to end.		I	M	A	D	A	M	A
4. Differentiate and use standard units: customary and metric.		I	M	A	D	A	M	A
5. Develop common referents (similarities) to measure and make comparisons and estimations.	I	D	D	M	M	A	A	D
6. Identify relationships among units and convert from one unit to another within the same system.				I	D	D	M	M
7. Explore what happens to measurements of a two-dimensional shape such as perimeter and area when the shapes change in some way.					I	D	D	M
8. Identify coins and bills, and make change for given amounts.		I	A	D	D	A	D	M

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM**

MEASUREMENT

Sub-goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy (**Continued**)

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
9. Use strategies for estimating the perimeters, areas, and volumes of irregular shapes.				I	D	D	M	M
10. Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and size of angles.					I	D	D	M
11. Use formulas to find the area of rectangles and related triangles and parallelograms.						I	D	M
12. Develop strategies to determine the surface areas and volumes of rectangular solids.							I	D
13. Identify, select, and use units of appropriate methods for estimating measurements.						I	D	M
14. Select and apply techniques and tools that would accurately find length, area, volume, and angle (measures should be precise).					I	D	M	A
15. Use formulas to determine the circumference of circles and the area of triangle, parallelograms, trapezoids, and circles.							I	D
16. Solve simple problems related to measurement.	I	D	D	M	A	A	D	M

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM
GEOMETRY**

Sub-goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1. Identify, name, build, draw, compare, and sort two- and three-dimensional shapes.	I	D	D	A	A	D	M	M
2. Describe attributes and parts of two-and three-dimensional shapes.		I	D	D	M	A	A	D
3. Investigate and predict the results of putting together and taking apart two-and three-dimensional shapes.			I	D	D	M	A	D
4. Name, describe, interpret relative positions in space, and apply ideas to relative position.		I	D	D	M	D	M	A
5. Find and name locations in coordinate systems such as maps.	I	D	D	A	M	D	D	A
6. Identify and apply slides, flips, and turns to objects and shapes.			I	D	M	D	M	A
7. Identify and create shapes that have symmetry	I	D	D	M	A	A	M	D
8. Create mental images of geometric shapes using spatial memory and spatial visualization.			I	D	D	A	D	M
9. Identify and represent shapes from different perspectives.	I	D	D	A	M	D	D	A
10. Relate ideas in geometry to ideas in number and measurement.				I	D	D	M	A
11. Identify geometric shapes and structures in the environment and specify their locations.	I	D	D	A	M	M	D	D
12. Identify, compare and analyze attributes of two-and three-dimensional shapes and develop vocabulary to describe the attributes.				I	D	D	M	A
13. Classify two-and three-dimensional shapes according to their properties and develop definitions of classes of shapes such as triangles and pyramids.					I	D	D	M
14. Investigate, describe, and reason about the results of subdividing, combining, and transforming shapes.						I	D	D

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM
GEOMETRY**

Sub-goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space (**Continued**).

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
15. Describe location and movement using common language and geometric vocabulary.					I	D	D	M
16. Make and use coordinate systems to specify locations and to describe paths.				I	D	D	M	M
17. Explore congruence and similarity.						I	D	D
18. Make and test conjectures about geometric properties and relationships and develop logical arguments to justify conclusions.							I	D
19. Find the distance between points along horizontal and vertical lines of a coordinate system.						I	D	D
20. Predict and describe the results of sliding, flipping, and turning two-dimensional shapes.						I	D	D
21. Describe a motion or a series of motions that will show that two shapes are congruent.						I	D	D
22. Identify and describe line and rotational symmetry in two-and three-dimensional shapes and designs				I	D	D	M	A
23. Build and draw geometric objects.	I	D	D	A	A	M	D	D
24. Create and design mental images of objects, patterns, and paths.				I	D	D	M	A
25. Identify and build a three-dimensional object from two-dimensional representations of that object.			I	D	D	M	A	A
26. Use geometric models to solve problems in other areas of mathematics, such as number, and measurement.				I	D	D	A	M
27. Identify geometric ideas and relationships and apply them to other disciplines and problems that arise in the classroom or in everyday life.				I	D	D	A	M
28. Describe, classify, and understand relationships among types of two-and three dimensional objects using their defining properties.						I	D	D

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM
GEOMETRY**

Sub-goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space **(Continued)**.

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

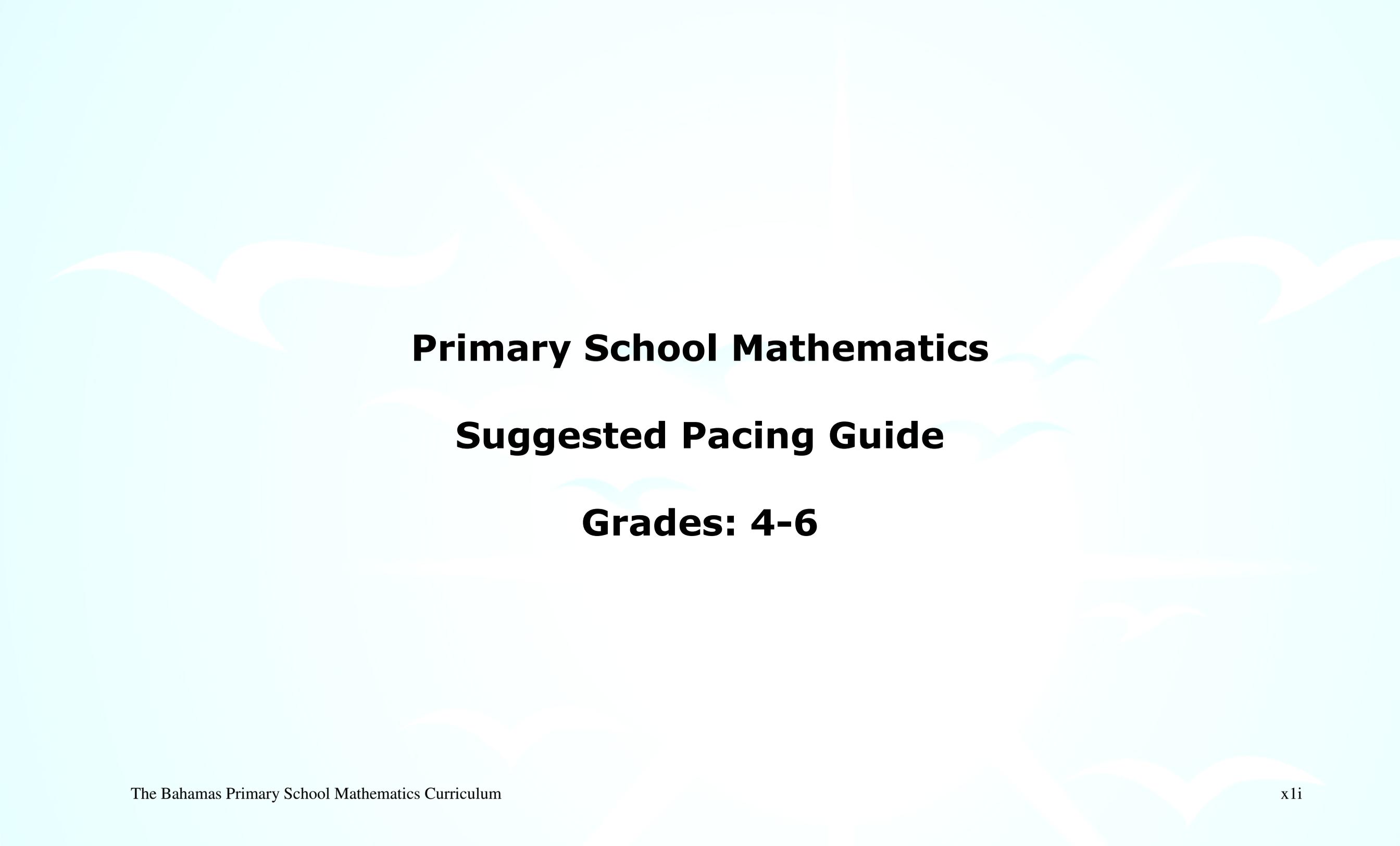
Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
29. Explain relationships among the angles, side lengths, perimeters, areas, and volumes of similar objects.						I	D	D
30. Use coordinated geometry to represent and examine the properties of geometric shapes.						I	D	D
31. Describe sizes, positions, and orientation of shapes under informal transformation such as flips, turns, and slides.					I	D	D	M
32. Identify and apply geometric ideas and relationships in areas outside the mathematics classroom, such as art, science, and every day life.				I	D	D	M	M

**SCOPE AND SEQUENCE
MATHEMATICS CURRICULUM
STATISTICS AND PROBABILITY**

Sub-goal 6: Collect, organize and analyze data using statistical methods: predict results; and interpret uncertainty-using concepts of probability.

Key: I = Introduce, D= Develop, M= Maintain, A= Advance

Objectives	Preschool	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1. Pose questions and gather data about themselves and their surroundings.	I	D	D	M	M	A	D	M
2. Sort and classify objectives according to their attributes and organize data about the objects.	I	D	D	M	M	A	D	M
3. Represent data using concrete objects, pictures, and graphs.	I	D	D	M	M	A	D	M
4. Describe parts of the data and the set of data as a whole to determine what the data show.			I	D	D	M	M	A
5. Discuss events related to students' experiences as likely or unlikely.	I	D	D	A	M	M	A	D
6. Collect data using observations, surveys, and experiments.			I	D	D	M	M	A
7. Represent data using tables and graphs such as bar graphs and line graphs.			I	D	A	D	M	M
8. Describe the shape and important features of a set of data and compare related data sets, with emphasis on how the data are distributed.					I	D	D	M
9. Compare different representations of the same data and evaluate how well each representation shows important aspects of the data.						I	D	D
10. Propose and justify conclusions and predictions that are based on data and design studies to further investigate the conclusions or predictions.						I	D	D
11. Describe events as likely or unlikely and discuss the degree of likelihood with such words as <i>certain, equally, likely, and impossible</i> .				I	D	A	M	M
12. Predict the probability of outcomes of simple experiments and test the predictions.				I	D	A	M	M
13. Formulate questions, design studies, and collect data about a characteristic shared by two populations or different characteristics within one population.					I	D	D	M



Primary School Mathematics

Suggested Pacing Guide

Grades: 4-6

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 4**

STRAND	TOPICS	DURATION				
		Day 1		2	1	2
		35 mins.	60 mins.	Days	Week	Weeks
Number and Number Sense	1. Numerals and Word Names Up to Millions			√		
	2. Place Value of Digits In Whole Numbers			√		
	3. The Role of The Numerator and Denominator In Fractions		√			
	4. Relationship Between Fractions and Whole Numbers			√		
	5. Reading and Writing Equivalent Fractions			√		
	6. Comparing Fraction, Decimals and Whole Numbers			√		
	7. Simplify Fractions			√		
	8. Fractions and Decimals Using Concrete Material			√		
	9. Writing and Illustrating Mixed Numbers			√		
	10. Writing Decimals Through Thousandths			√		
	11. Representing a Decimal as Part of a Whole			√		
	12. Writing Roman Numerals to M			√		
	13. Interpreting the Language of Mathematics In Problem Solving		√			
Patterns, Functions, and Algebra	1. Pictorial and Numeric Patterns			√		
	2. Pattern of Remainders In Division by 2, 3, and 4			√		
	3. Non-routine Problems: Finding a Pattern			√		
	4. Counting to 100 by 6s, 7s, and 8s			√		
	5. The Difference Between Odd and Even Numbers		√			
	6. Creating Squared Numbers			√		

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 4**

STRAND	TOPICS	DURATION				
		Day 1		2 Days	1 Week	2 Weeks
35 mins.	60 mins.					
Computation and Estimation	1. Rounding Whole Numbers to The Nearest Thousand			√		
	2. Rounding Decimals to The Nearest Whole, Tenth, and Hundredth			√		
	3. Multiplication and Division Facts: Three Seconds		√			
	4. Solving Multiplication Story Problems			√		
	5. Division as the Inverse of Multiplication		√			
	6. What a Remainder Means in a Division Problem					
	7. Three- Digits Dividend by One Digit Divisor				√	
	8. The Product of Two-Digits				√	
	9. Subtracting Columns of Numbers: Three -Digit Numbers			√		
	10. Through Estimation, Adding, and Multiplying, Up to Two Digits by Three Digits			√		
	11. Mixed Numbers with Like Denominators Without Regrouping			√		
	12. Solving Problems Involving Addition and Subtraction of Fractions			√		
	13. Like Denominators in Fractions			√		
	14. Solving One and Two Step Problems Involving the Four Operations				√	
Measurement	1. Measuring Length in Kilometres, Metres, Decimetres			√		
	2. Relationship Among the Metric Units		√			
	3. Converting Metric Units of Length, Mass and Capacity					√
	4. Measurement Using Millitre and Litre			√		
	5. Using Grams and Kilograms to Estimate and Determine Mass			√		
	6. The Concept of Volume			√		
	7. Selecting The Appropriate Unit for Estimating and Measuring Volume		√			
	8. Volume Concept of a Litre by Construction			√		
	9. Problems: Addition and Subtraction of Metric Units			√		
	10. Reading the Thermometer in Celsius and Fahrenheit			√		
	11. Calculating Area of Objects and Shapes Using Appropriate Units			√		
	12. Calculating the Area of Rectangles Using Arrays			√		
	13. Measuring and Calculating Perimeter of Objects and Shapes			√		
	14. Measuring Time Needed to Perform a Task		√			

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 4**

STRAND	TOPICS	DURATION				
		Day 1		2	1	2
		35 mins.	60 mins.	Days	Week	Weeks
Measurement	15. Using A.M. and P.M. Appropriately		√			
	16. Writing Time to the Nearest Minute			√		
	17. Writing Time to Twenty-Four Hour Clock			√		
	18. Converting Hours to Minutes and Vice Versa				√	
	19. Solving Problems Involving Elapse Time				√	
	20. Solving Real World Problems				√	
Geometry	1. Naming and Drawing Points, Line, Segments, Rays and Angles			√		
	2. Identifying Right, Acute, and Obtuse Angles				√	
	3. Identifying Parallel and Perpendicular Lines				√	
	4. Identifying Shapes with Multiple Lines Of Symmetry				√	
	5. Translating Reflection and Rotation				√	
	6. Identifying and Drawing up to 10 Sided Polygons				√	
	7. Faces, Edges, and Vertices on a Given Solid				√	

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 4**

STRAND	TOPICS	DURATION				
		Day 1		2	1	2
		35 mins.	60 mins.	Days	Week	Weeks
Statistics and Probability	1. Using Graph Data on a Line Graph			√		
	2. The Different Uses of Bar and Line Graphs		√			
	3. Recording, Organizing, and Analyzing Data For Bar and Line Graphs			√		
	4. Calculating the Average Arithmetical Mean of a Set of Data			√		
	5. Averaging /Mean of a Set of Data Using Mental Arithmetical			√		
	6. Identifying The Mode, Median, and Range of a Set of Data				√	
	7. Simple Experiment and Record Probability				√	
	8. Writing Probability as a Fraction or Ratio				√	

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 5**

STRAND	TOPICS	DURATION				
		Day 1		2	1	2
		35 mins.	60 mins.	Days	Week	Weeks
Number and Number Sense	1. Numerals and Word Names to Millions			√		
	2. Place Value of Digits in Whole Numbers			√		
	3. Ordering Whole Numbers, Fractions, and Decimals			√		
	4. Fractions, Decimals, Whole Numbers in Ascending and Descending			√		
	5. Difference, Between Even/ Odd Numbers			√		
	6. Terms Sum, Difference, Product, Quotient, Factor, Divisor			√		
	7. Equivalent Fractions and Decimals				√	
	8. Simplifying Fractions to Lowest Terms				√	
	9. Relationship Between, Fractions and Whole Numbers				√	
	10. Writing Decimals Through Thousandths				√	
	11. Fractions to Decimals and Vice-Versa			√		
	12. Rounding Decimals to Nearest Tenths, Hundredths and Thousandths			√		
	13. Decimals as Part of a Whole			√		
	14. Ordering of Decimals Through Thousandths			√		
	15. Identifying Factors and Multiples			√	√	
	16. Identifying L.C.M and G.C.F of Two Numbers				√	
	17. L. C. M and G.C.F			√		
	18. Products of Prime Numbers Using Exponential Notation				√	
	19. Interpreting the Language of Mathematics in Problem Solving				√	

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 5**

STRAND	TOPICS	DURATION				
		Day 1		2	1	2
		35 mins.	60 mins.	Days	Week	Weeks
Patterns, Functions, and Algebra	1. Describing and Extending Numerical and Geometric Patterns 2. Using Concrete Objects Pictures or Numbers				√	
				√		

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 5**

STRAND	TOPICS	DURATION				
		Day 1		2 Days	1 Week	2 Weeks
		35 mins.	60 mins.			
Computation and Estimation	1. Using Answers to Solve Single and Multi-Step Problems				√	
	2. Using Several Methods to Solve Problems Including Rounding				√	
	3. Rounding to the Nearest Tenth, Hundredth and Thousandth				√	
	4. Recalling Basic Addition, Subtraction, Multiplication and Division Facts			√		
	5. The Meaning of Multiplication and Division in Words and Pictures			√		
	6. Multiplying up to Two Digits by Three Digits				√	
	7. Applying Different Forms of Division			√		
	8. Dividing up to Four Digit Dividends by Two-Digit Divisor			√		
	9. Using Divisibility Rules For 2, 3, 5, and 10		√			
	10. Multiplying and Dividing by Multiples and Powers of 10		√			
	11. Checking Answers to Multiplication and Division Problems				√	
	12. Applying the Rules of Order of Operations				√	
	13. Adding and Subtracting Fractions and Mixed Numbers					√
	14. Solving Problems Involving Addition and Subtraction of Decimals					√
	15. Solving Whole Numbers Decimals and Money Computation Problems				√	

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 5**

STRAND	TOPICS	DURATION				
		Day 1		2 Days	1 Week	2 Weeks
		35 mins.	60 mins.			
Measurement	1. Measuring Length Using Metric Units-Kilometre, Metre			√		
	2. Metric Measure Using Decimals			√		
	3. Solving Problems Involving Linear Measure			√		
	4. Measuring Perimeter of Objects		√			
	5. Linear Measure Using Multiples and Submultiples			√		
	6. Describing the Circumference of a Circle		√			
	7. Calculating the Area of Rectangles and Squares			√		
	8. Differentiating Between Applications of Area and Perimeter		√			
	9. Measuring Volume With Appropriate Units			√		
	10. Expressing Millimetres as Litres			√		
	11. Solving Problems With Capacity Measures			√		
	12. Standard Units to Estimate			√		
	13. Solving Problems Involving Mass Measurement			√		
	14. Comparing and Measuring Time			√		
	15. The Relationship Among Seconds, Minutes, Hours		√			
	16. Recording the Data in SI Format		√			
	17. Writing Times to the Nearest Minute on a Twelve Hour Clock			√		
	18. Converting Hours to Minutes and Vice Versa			√		
	19. Solving Problems Involving Elapsed Time			√		
	20. Converting From Degrees Celsius to Fahrenheit			√		

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 5**

STRAND	TOPICS	DURATION				
		Day 1		2	1	2
		35 mins.	60 mins.	Days	Week	Weeks
Geometry	1. Describing Points, Lines, and Line Segments			√		
	2. Open and Closed Curves			√		
	3. Estimating the Various Sizes of Different Angles			√		
	4. Measuring Angles to 180° Using a Protractor				√	
	5. Using the Sum of Angles in a Circle and on a Straight Line			√		
	6. Classifying Polygons Up to 10 Sides			√		
	7. Differences Between Regular and Non-Regular Polygons				√	
	8. Using Various Motions as a Translation				√	
	9. Identifying Acute, Obtuse, and Right Angles				√	
	10. Investigating, Classify, and Naming Solid Shapes				√	
Statistics and Probability	1. Finding the Mean, Median, Mode and Range			√		
	2. Analyzing Data to Make Decisions			√		
	3. Interpreting Double Bar Graphs			√		
	4. Interpreting Venn Diagrams			√		
	5. Verifying by Doing Trials in an Experiment			√		
	6. Fraction and Ratio			√		
	7. Situations Involving Chance			√		

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 6**

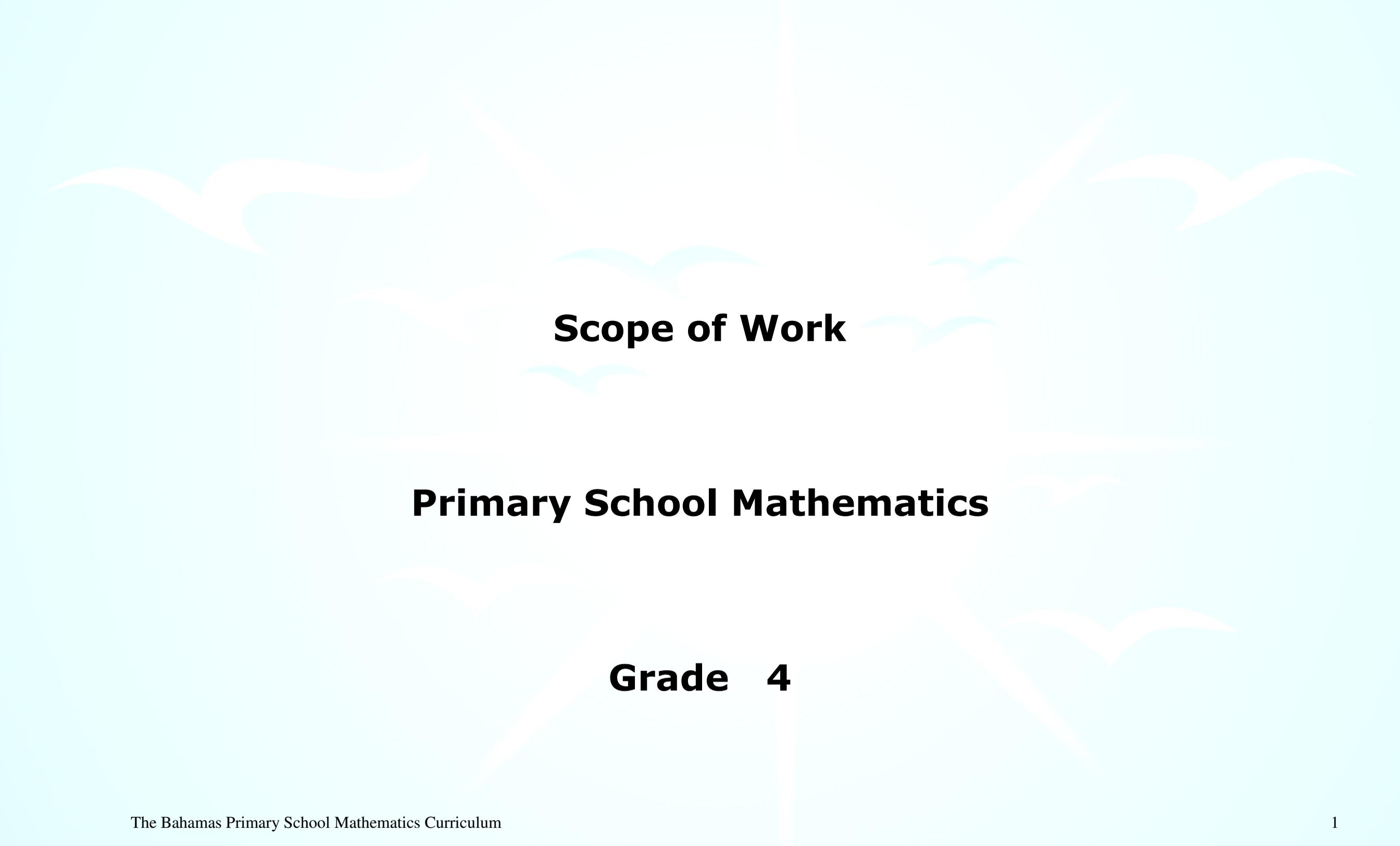
STRAND	TOPICS	DURATION				
		Day 1		2 days	1 week	2 weeks
		35 min	60 min			
Number and Number Sense	1. Writing Numbers Through Billions		√			
	2. Numbers Through Billion Using the Symbols <, >, and =		√			
	3. Writing the Differences Between Factors and Multiples		√			
	4. Representing Integers on the Number Line			√		
	5. Products of Prime Numbers Using Exponential			√		
	6. Factors to Find LCM and HCF			√		
	7. Square Roots of Non-Perfect Squares			√		
	8. Using HCF to Simplify Fractions			√		
	9. Identifying Decimals Through Thousandths			√		
	10. Ordering Whole Numbers, Fractions and Decimals			√		
	11. Equivalent Relationship Among Fractions, Decimals & Percent			√		
	12. Comparing Two Sets of Data Using Ratios and Appropriate Notations			√		
	13. Representing Ratios in Decimal Form			√		
	14. Identifying Pi As a Special Ratio			√		
Patterns, Functions, and Algebra	1. Constructing Patterns Relating to Rectangular, Square, Oblong			√		
	2. Solving Non-Routine Problems Using Finding a Pattern as a Strategy			√		
	3. Using Patterns to Make Computation More Efficient			√		
	4. Using Pictures and Abstraction			√		
	5. Solving Story Problems Using Algebraic Equations				√	

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 6**

STRAND	TOPICS	DURATION				
		Day 1		2 days	1 week	2 weeks
		35 min	60 min			
Computation and Estimation	1. Using Several Methods Including Rounding			√		
	2. The Divisibility Rules for 2, 3, 4, 10			√		
	3. Using Mental Math Strategies in Addition, Subtraction, Multiplication and Division			√		
	4. Calculating Using Addition, Subtraction, Multiplication and Division			√		
	5. Multiplying and Dividing Money			√		
	6. Applying Rules of Order of Operations			√		
	7. Simplifying Fractions			√		
	8. Rules of Addition and Subtraction to Fractions and Mixed Numbers			√		
	9. Multiplication to Fractions			√		
	10. Converting From Fractions to Decimal to Percent				√	
	11. Rules of Addition Subtraction, Multiplication and Division to Decimals			√		
	12. Solving Problems Using Fractions and Decimals				√	
	13. The Relationship Between Fractions, Decimals, and Percents			√		
	14. Computing the Percent of a Number				√	
Measurement	1. Measurement of Length, Volume, Capacity, Temperature, or Mass				√	
	2. Temperature in Metric Units			√		
	3. Measurement Which Require The Conversion of Units					√
	4. Expressing Metric Measure Using Decimal Notation			√	√	
	5. Other Countries Measure (time and money)		√			
	6. Recording the Date in SI Format		√			
	7. Solving Non-Routine Problems Involving Measures			√		
	8. Area and Perimeter		√			
	9. Solving Problems Using Km/Hr			√		
	10. Interpreting Scales On Maps			√		
	11. Measuring Area of Regular and Irregular Polygons			√		

**MINISTRY OF EDUCATION
PRIMARY SCHOOL MATHEMATICS CURRICULUM
TOPIC PACING GUIDE
GRADE: 6**

STRAND	TOPICS	DURATION				
		Day 1		2	1	2
		35 mins.	60 mins.	Days	Week	Weeks
Geometry	1. Types of Quadrilaterals and Their Properties			√		
	2. Naming Triangles as Scalene, Isosceles, and Equilateral			√		
	3. Classifying and Naming Triangles as Right, Acute, and Obtuse			√		
	4. Symmetry in Polygons			√		
	5. Parts of a Circle			√		
	6. Identifying Motions as Translation, Reflection of Rotation			√		
	7. Angles Through Measurement and Estimation as Acute, Obtuse			√		
Statistics and Probability	1. Types of Graphs Most Suitable for Display			√		
	2. Collecting, Organizing, Graph, and Analyzing a Set of Data			√		
	3. Interpreting Circle Graphs			√		
	4. Solving Problems Involving Mean, Median and Mode			√		
	5. Verifying the Probability of an Outcome and Writing it as a Fraction			√		
	6. Using Probability to Make Reasonable Predictions			√		
	7. Describing a Fair Game`			√		



Scope of Work

Primary School Mathematics

Grade 4

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 4**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

Essential Questions

1. How does place value help me understand numbers?
2. How can we compare and contrast numbers?
3. What are the different ways to read and write a number?
4. What is the relationship between fractions and whole numbers?
5. How do you simplify a fraction?
6. What is the importance of using and interpreting the language of mathematics in problem solving?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 4**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT														
1. Write numerals and word names up to millions.	<ul style="list-style-type: none"> A number tells you how many or how much, a number can be written in words or symbols. The symbols 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 are called digits. <p>Example: 4 636 192 = four million six hundred thirty-six thousand, one hundred ninety-two</p>	<ul style="list-style-type: none"> Tell how greater numbers are used in everyday life. e.g.: distance to other countries, lengths, height, population of cities etc. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teacher's Edition Volume pg. 58 	<ul style="list-style-type: none"> Discussion: What is the difference between the way you would write 900,000, the way you would write 90,000 and the way you would write 9,000 in standard form? Discuss other numbers in the same way. 														
2. Identify place value of digits in whole numbers up to the millions.	<ul style="list-style-type: none"> You can write numbers in different ways e.g. Standard form, expanded form, and word form. E.g.: Standard form = 248, Expanded form = 200 + 40 + 8 Word form = two hundred forty eight. Vocabulary: digits, standard form, expanded form and word form <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Million</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Hundred thousand</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Ten thousand</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Thousands</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Hundreds</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Tens</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Ones</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">6</td> <td style="text-align: center;">1</td> <td style="text-align: center;">5</td> <td style="text-align: center;">3</td> <td style="text-align: center;">9</td> <td style="text-align: center;">2</td> </tr> </table> <p>Note: 6 is in the hundred thousands place. The value of 6 is 600,000</p>	Million	Hundred thousand	Ten thousand	Thousands	Hundreds	Tens	Ones	4	6	1	5	3	9	2	<ul style="list-style-type: none"> Use a place value chart to show larger numbers. Tell and write the value of a digit using base ten blocks. Game: "It's in the bag" Students make and play a place value game. The directions can be found on page 58 unit 1, Harcourt Math Bk. 3 Volume 1. Practice reading and writing numbers in the three forms. Use place value models to show and read numbers. Use place value chart and number line to show larger numbers. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Volume 1 	<ul style="list-style-type: none"> Write the place value positions of the zeros in the number 70,010 (thousands, hundred, ones). Lesson Quiz: Write in standard form Eg: 80,000 (eighty thousand). 3,000 (three thousand). Write numbers in expanded and word form. Less Quiz Eg. 300 090= 300 000 +90 -Fifty one thousand- 51000
Million	Hundred thousand	Ten thousand	Thousands	Hundreds	Tens	Ones												
4	6	1	5	3	9	2												

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 4**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Identify and explain the role of the numerator and denominator in fractions.	<ul style="list-style-type: none"> The numerator tells how many parts are being counted. The denominator tells how many equal parts are in the whole. <p>Eg: $\frac{5}{9}$ numerator 9 denominator</p>	<ul style="list-style-type: none"> Concentration Match Game: <ol style="list-style-type: none"> Have students match a fraction with the pictorial representation. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">1/2</div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="width: 20px; height: 20px; border: 1px solid black;"></div> <div style="width: 20px; height: 20px; background-color: black;"></div> </div> </div> </div>	<ul style="list-style-type: none"> Mathworksheet.com 	<ul style="list-style-type: none"> Journal Writing Draw and write the fraction for a part of a group or part of a shape. Explain your answer.
4. Explain the relationship between fractions and whole numbers.	<ul style="list-style-type: none"> Whole numbers can be expressed as fractions. E.g 4 – whole number $\frac{4}{1}$ -fraction Fractions such as $\frac{2}{2}$ as $\frac{3}{3}$ are equal to 1 whole. Fractions are extension of the place value system. 	<ul style="list-style-type: none"> Have students cut apples or oranges to show fractions. 	<ul style="list-style-type: none"> Fractional Cutouts 	<ul style="list-style-type: none"> Have students write in Math Journal explaining the relationship between fractions and whole numbers using examples.
5. Identify, read and write equivalent fractions (Continued).	<ul style="list-style-type: none"> Two or more fractions that name the same amounts are called equivalent fractions. 		<ul style="list-style-type: none"> Fraction Monkey www.sums.cook/playground/n6a/playground.htm 	<ul style="list-style-type: none"> Quiz

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 4

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT																											
5. Identify, read, and write equivalent fractions.	<ul style="list-style-type: none"> Multiply the numerator and denominator by the same number to find an equivalent fraction. e.g. $\frac{1}{4} \times 2 = \frac{2}{8}$ $\frac{1}{4} = \frac{2}{8}$ Another way to find equivalent fractions is to use fraction strips. E.g. <div style="text-align: center; border: 1px solid black; padding: 5px; margin: 10px 0;"> <table style="margin: auto;"> <tr><td colspan="3" style="text-align: center;">1</td></tr> <tr><td style="text-align: center;">1/4</td><td colspan="2"></td></tr> <tr><td style="text-align: center;">1/8</td><td style="text-align: center;">1/8</td><td></td></tr> </table> </div> Both $\frac{1}{4}$ and $\frac{2}{8}$ name the same part of a whole. 	1			1/4			1/8	1/8		<ul style="list-style-type: none"> Fraction Monkey: Students match equivalent fractions. <ul style="list-style-type: none"> Divide students into groups. Place fraction flashcards and its equivalent face down on the table. The group that finishes first with the correct responses is the winner. Using a model to show equivalent fractions. Step 1 <ul style="list-style-type: none"> Start with the bar for 1 whole line up two $\frac{1}{3}$ bars for $\frac{2}{3}$. <div style="text-align: center; border: 1px solid black; padding: 5px; margin: 10px 0;"> <table style="margin: auto;"> <tr><td colspan="6" style="text-align: center;">1</td></tr> <tr><td colspan="2" style="text-align: center;">1/3</td><td colspan="2" style="text-align: center;">1/3</td><td colspan="2" style="text-align: center;">1/3</td></tr> <tr><td style="text-align: center;">1/6</td><td style="text-align: center;">1/6</td><td style="text-align: center;">1/6</td><td style="text-align: center;">1/6</td><td style="text-align: center;">1/6</td><td style="text-align: center;">1/6</td></tr> </table> </div> Step 2 <ul style="list-style-type: none"> Use $\frac{1}{6}$ bars to match the length of the bars for $\frac{2}{3}$. Step 3 <ul style="list-style-type: none"> Count the number of $\frac{1}{6}$ bars that make up $\frac{2}{3}$: Write the equivalent fraction. Count $\frac{1}{6}$, $\frac{2}{6}$, $\frac{3}{6}$, $\frac{4}{6}$ 	1						1/3		1/3		1/3		1/6	1/6	1/6	1/6	1/6	1/6		
1																															
1/4																															
1/8	1/8																														
1																															
1/3		1/3		1/3																											
1/6	1/6	1/6	1/6	1/6	1/6																										

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 4**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
6. Order and compare fractions, decimals, and whole numbers up to millions using the symbols =, >, and <.	<ul style="list-style-type: none"> • Numbers are compared to decide which of the 2 numbers is greater or less than. • Use these symbols. <ul style="list-style-type: none"> a. Greater than > $\frac{1}{4} > \frac{1}{9}$ b. Less than < $0.1 < 0.25$ a. Equal to = $\frac{1}{4} = \frac{2}{8}$ • You can order numbers by comparing the digits in the same place value position from left to right. Example: 1364; 1364: 1634: 1694 	<ul style="list-style-type: none"> • Use the number line to compare numbers. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3 • enVisionMath Bk. 3 pg. 315 	<ul style="list-style-type: none"> • Discussion: How would you compare 786 and 787 to find the greater number?
7. Simplify fractions (Continued).	<ul style="list-style-type: none"> • A fraction is in its simplest form when the numerator and denominator have no common factor other than 1. e.g. Write 4/12 in simplest form by dividing twice. $\frac{4}{12} \div \frac{2}{2} = \frac{2}{6}$ 	<ul style="list-style-type: none"> • Interactive fraction Games: Students play on line games where they simplify fractions. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3 Teacher's Edition Volume 2 pg. 514 G • mathisfun.com • funbrain.com • coolmath4kids.com 	<ul style="list-style-type: none"> • Write fractions in simplest form

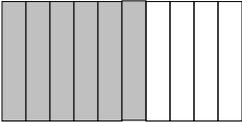
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 4**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
7. Simplify fractions.	<p>* 4 and 12 are both even. Two is a common factor.</p> $\frac{2}{6} \div \frac{2}{2} = \frac{1}{3}$ <p>* 2 and 6 are both even numbers. Two is the greatest common factor. Divide the numerator and the denominator by the greatest common factor.</p> <p>Write 4/12 in simplest form by dividing by 4.</p> $\frac{4}{12} \div \frac{4}{4} = \frac{1}{3}$ <p>In simplest form, $\frac{4}{12} = \frac{1}{3}$</p>			

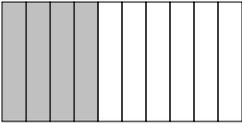
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 4**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
8. Equate fractions and decimals using concrete material or pictorial.	<ul style="list-style-type: none"> Equate numbers, word name, standard form and expanded form. <p>e.g. word name: sixth tenth = $\frac{4}{10}$</p>  <p>Standard form: 0.75 = seventy-five hundredth</p> <p>expanded form: $3 + 0.7 + 0.06 + 0.002 = 3.762$</p> <ul style="list-style-type: none"> Equate one dollar to percent. 	<ul style="list-style-type: none"> Working in pairs, have students draw pictures to illustrate fractions or decimals. Have them exchange their drawings and write the fractions and decimals. Use graph paper to show fractions and decimals. 	<ul style="list-style-type: none"> edhelper.com 	<ul style="list-style-type: none"> Have students write fractions and decimals from pictorial representations.
9. Identify, write and illustrate mixed numbers.	<ul style="list-style-type: none"> A mixed number is made up of a whole number and a fraction e.g. $1\frac{2}{4}$ <p>a. 1 is the whole number and $\frac{2}{4}$ is the fraction.</p>	<ul style="list-style-type: none"> Use models to show mixed numbers Fraction models 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teacher's Edition Vol. 2 	<ul style="list-style-type: none"> Illustrate and explain a mixed number.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 4**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT				
<p>9. Read and write decimals through thousandths.</p>	<ul style="list-style-type: none"> A decimal is a number with one or more digits to the right of the decimal point. A decimal uses place value to show values of numbers less than 1 such as tenths, hundredth and thousandths. <div style="text-align: center;">  </div> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Fraction</td> <td style="text-align: center;">Decimal</td> </tr> <tr> <td style="text-align: center;">Write: 4/10</td> <td style="text-align: center;">Write: 0.4</td> </tr> </table> <ul style="list-style-type: none"> READ: four tenths READ: four tenths The fraction 4/10 and 0.4 name the same amount. 	Fraction	Decimal	Write: 4/10	Write: 0.4	<ul style="list-style-type: none"> Have students use money to model decimals. <ul style="list-style-type: none"> a. One dollar b. one dime c. one penny 100 cents 10 cents 1 cent Decimal Concentration <ul style="list-style-type: none"> a. Have students match decimals with their pictorial representations. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teacher's Edition Vol. 2 	<ul style="list-style-type: none"> Quiz
Fraction	Decimal							
Write: 4/10	Write: 0.4							

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 4**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>10. Compare and order decimal through thousandths.</p>	<ul style="list-style-type: none"> • Use place value. Start at the left. Look for the first place where the digits are different. Example: 0. 472 ; 0. 679 9 thousandths > 2 thousandths 0. 6790 > 0.472 	<ul style="list-style-type: none"> • Use place value to solve word problems A penny made in 1982 weighs about 0.129 ounce. A penny made in 2006 weighs about 0.120 ounce. Which penny weighs more, a 1982 or 2006 penny? a. Use place value to solve problem. 0.129 ; 0.120 - Start at the left. Look for the first place where the digits are different. 9 thousandths > 0 thousandths 0.129 > 0.120 Therefore, a penny made in 1982 weighs more than a penny in 2006. • Students can also use the hundred grid. 	<ul style="list-style-type: none"> • Envision Math Bk. 4 p. 271 	<ul style="list-style-type: none"> • Order and compare fractions and decimals from greatest to least and vice- versa. Example: Order $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{3}{4}$ from greatest to least.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 4

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT						
12. Use words, pictures or concrete materials to represent a decimal as part of a whole.	<ul style="list-style-type: none"> A whole can be divided into 100 equal parts called hundredths. Six parts out of the 100 equal parts is $\frac{6}{100}$ (6 hundredth) as a fraction and 0.06 as a decimal. 	<ul style="list-style-type: none"> Use decimal models to show part of a whole E.g. $\frac{2}{10}$ or 0.20  Below your decimal model, write the fraction and decimal amount you have shown $\frac{2}{10}$ or 0.2 Use place value chart to show fraction and decimals E.g. $\frac{7}{10}$ or seven tenths or 0.7 <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 2px;">ones</td> <td style="padding: 2px;">.</td> <td style="padding: 2px;">tenths</td> </tr> <tr> <td style="padding: 2px;">0</td> <td style="padding: 2px;">.</td> <td style="padding: 2px;">7</td> </tr> </table> 	ones	.	tenths	0	.	7	<ul style="list-style-type: none"> Harcourt Math Bk. 3 	<ul style="list-style-type: none"> Use graph paper to draw decimal models. Write fractions as a decimals E.g. $\frac{19}{100}$ 0.19 Write decimals as a fraction 0.04 $\frac{4}{100}$
ones	.	tenths								
0	.	7								
13. Read and write Roman Numerals to M (1 000)-Continued.	<ul style="list-style-type: none"> The ancient Romans used seven letters to name numbers. Roman numerals are still used today. You may see them on clocks and buildings. Place value is not used with Roman Numerals. 	<ul style="list-style-type: none"> Roman Numerals Game Students can work in pairs. Each student can write an Arabic numeral on a sheet of paper and then his/her partner can write the corresponding Roman numeral. The students can take turns writing numbers. This can also be done in reverse, with the student writing the Roman numeral first and the partner writing the Arabic numeral. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teacher's Edition Volume 1 	<ul style="list-style-type: none"> Discussion: What do you notice that is different about Roman Numerals? Explain how to find the value of Roman Numerals. 						

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
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Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
14. Read and write Roman Numerals to M.	<ul style="list-style-type: none"> The values of the letter are added or subtracted to find the total. <p style="text-align: center;"> I - 1 L - 50 V - 5 C - 100 X - 10 D - 500 M - 1000 </p> When a letter is repeated, add the value of each letter. E.g. XXX $X + X + X = 30$ When a letter with a greater value is placed before a smaller one, you add. E.g. $XVI \rightarrow 10 + 5 + 1 = 16$ If a smaller value is placed before a larger one, you subtract. E.g. $XL \rightarrow 50 - 10 = 40$ 	<ul style="list-style-type: none"> Flip and Match <ul style="list-style-type: none"> Class is divided into groups. Each group has flash cards comprised of Roman Numerals and its corresponding numbers which are turned faced down. Students match the Roman Numerals to its numeric value. The group that finishes first is the winner. Groups report on its most simple or difficult task experience with the game. 		<ul style="list-style-type: none"> Write the value of each Roman numeral. <p style="text-align: center;"> E.g. VIII = 8 CX = 110 IX = 9 MMM = 3 000 CD = 400 DCLXV = 655 XLV = 45 etc </p>

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 4**

Sub-Goal 1: Demonstrate and apply knowledge of numbers, including multiple ways of representing numbers, relationships among numbers, and number systems.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
15. Use and interpret the language of mathematics in problem solving.	<ul style="list-style-type: none"> • Understand what the problem is asking. • Figure out what information you know and what you need to know to solve the problem. • Key words in word problems indicate which operation/s are involved. • Some key words for addition are <i>increase by, more than, total of, sum, in all, and altogether.</i> • Some key words for subtraction are <i>less than, difference of, how many are left, how many more and how many less.</i> • Some key words for multiplication are <i>times</i> and <i>every.</i> • Some key words for division are <i>each, share, quotient, and average.</i> 	<ul style="list-style-type: none"> • In groups, have students solve problems. 	<ul style="list-style-type: none"> • rhlschool.com • Harcourt Math Bk. 3 • IXL.com 	<ul style="list-style-type: none"> • Journal Writing: Write how to solve a problem giving reasons for selecting the problem solving strategy and the operation to solve the problem.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRANDS: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE 4**

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationship in data, solve problems, and predict results.

Essential Questions

1. What can patterns reveal? How do the many types of patterns help us solve problems?
2. What predictions can the patterns or relationships support?
3. How can graphic representations of data help us solve problems?
4. How can prediction help you solve division problems?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRANDS: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE 4**

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationship in data, solve problems, and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT												
1. Identify, create, complete, and generalize pictorial and numeric patterns.	<ul style="list-style-type: none"> An ordered set of numbers or objects is called a pattern. The order helps you to predict what will come next in the pattern. Use addition, subtraction, division, and multiplication to find patterns. E.g. <table border="1"> <tbody> <tr> <td>Number of Spiders</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>?</td> </tr> <tr> <td>Number of legs</td> <td>8</td> <td>?</td> <td>24</td> <td>32</td> <td>56</td> </tr> </tbody> </table>	Number of Spiders	1	2	3	4	?	Number of legs	8	?	24	32	56	<ul style="list-style-type: none"> Design and draw their own pattern and describe it to the class. Tell how the numbers or objects are related, to form a pattern. Make and write rules for their patterns. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3, pgs. 2, 136, Teacher's Edition Volume 2 enVision Math Bk. 3 p. 210 	<ul style="list-style-type: none"> Look at given patterns and explain how to find a rule. Then write a rule for each pattern. Complete pictorial and numeric patterns.
Number of Spiders	1	2	3	4	?											
Number of legs	8	?	24	32	56											

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRANDS: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE 4

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationship in data, solve problems, and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Investigate the pattern of remainders in division by 2, 3, and 4 (Continued).	<ul style="list-style-type: none"> A rule can be used to describe a pattern. When you divide one number by another, and have left over, that amount is called the remainder. You will get remainders when you are dividing whole numbers and you are not using decimal values. <p>Examples: $5 \div 2 = 2$ with remainder 1 $7 \div 2 = 3$ with remainder 1 $5 \div 3 = 1$ with remainder 2 $5 \div 4 = 1$ with remainder 1 (4 + 1) $6 \div 4 = 1$ with remainder 2 (4 + 2) $7 \div 4 = 1$ with remainder 3 (4 + 3) $9 \div 4 = 2$ with remainder 1 (4 + 4 + 1) $6 \div 4 = 1$ with remainder 2 (5 + 1) $7 \div 4 = 1$ with remainder 3 (5 + 2) $8 \div 4 = 1$ with remainder 4 (5 + 3) $9 \div 4 = 2$ with remainder 1 (5 + 4)</p>	<ul style="list-style-type: none"> Divide the Line: <ol style="list-style-type: none"> Line up students (30-Numbers will vary depending of class size). Teacher asks, “If you put 30 students into one group, how many groups will you have?” (1 group) Teacher instructs students to form 2 groups and asks, “If you place 30 students into two groups, how many students will be in each group?” (15 students) This continues until as many groups as possible can be formed. Students will eventually predict the amount of groups, totals, and remainder (patterns). 	<ul style="list-style-type: none"> http://www.numbernut.com Harcourt Math Book 3, pg. 536, Teacher’s Edition Volume 1 	<ul style="list-style-type: none"> Quiz <ol style="list-style-type: none"> Example: Divide \$1.13 among 3 people. Will each person get 35¢? Show your working. Write the missing numbers E.g. 235, 241, 247, ____, _____, _____

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRANDS: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE 4**

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems, and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Investigate the pattern of remainders in division by 2, 3, and 4.	Do you see any patterns ? <ul style="list-style-type: none"> Remainders can never be larger than the number you are dividing by. 			
3. Solve non-routine problems where finding a pattern is an appropriate strategy.	<ul style="list-style-type: none"> Non-routine problems involve the processes of exploring, speculating, and confirming. 	<ul style="list-style-type: none"> Read and then, talk about ways to solve problems, similar to the ones below. <ol style="list-style-type: none"> Dan is six years older than Darla. Dan is 25 years old write an equation to find Darla's age. Talk about what you did. Blanca spent \$24 on plants. Each plant cost \$3. Which equation could be used to find the number of plants that she bought? $\square - 3 = 24$ $24 \div 3 = \square$ $24 - 3 = \square$ $\square + 3 = 24$ 	<ul style="list-style-type: none"> Harcourt Math Bk. 3, pg. 136 & 137 	<ul style="list-style-type: none"> Quiz: Students solve non-routine problems.

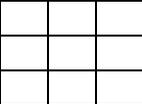
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRANDS: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE 4**

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems, and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>4. Skip count to 100 by 6s, 7s and 8s.</p>	<ul style="list-style-type: none"> Skip counting can be used to make a number pattern and find missing numbers in a given pattern. a. Example: Skip count by 6s for this pattern 36, 42, __, 54, __ 	<ul style="list-style-type: none"> Skip count by 6s 7s and 8s to 100 to complete given patterns. E.g. 18, 26, 34, __, __, __. Have students make number patterns using a calculator. <p>Example: 26 add 7 26, 33 40, 47 502 subtract 9 502, 403, 484 14 add 23 14, 37, 60 999 subtract 135 999, 864, 729, 594</p>	<ul style="list-style-type: none"> enVisionMath Bk. 3 pg. 15 Harcourt Math Bk. 3. pg. 2 	<ul style="list-style-type: none"> Explain how to find a rule of given patterns, then write rule for each pattern.
<p>5. Explain the difference between odd and even numbers in terms of one- to one correspondence.</p>	<ul style="list-style-type: none"> Numbers can be arranged in dot patterns. Even numbers have pairs of dots E.g. ●-----● ●-----● ●-----● ●-----● Odd numbers have pairs of dots with one dot left over. E.g. ●-----● ●-----● ● When one is added to an even number, that number now becomes odd. 	<ul style="list-style-type: none"> In cooperative groups, have students' complete odd and even patterns. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3, pg. 3 	<ul style="list-style-type: none"> Use the hundred-chart to show odd and even numbers. <p>Example: Start at 2 and skip count by twos. Move 12 skips. What number you land on. Is it odd or even?</p>

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRANDS: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE 4**

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems, and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT				
<p>6. Identify and create square numbers.</p>	<ul style="list-style-type: none"> • A square number forms a square. Example: $9 = 3 \times 3$ <div style="text-align: center;">  <p>3×3</p> </div> <ul style="list-style-type: none"> • The square of a number is that number multiplied by itself. • To square a quantity is to multiply it by itself. • All square numbers end in 0, 1, 4, 5, 6 or 9. • The first ten square numbers are - <u>1</u>, <u>4</u>, <u>9</u>, <u>16</u>, <u>25</u>, 36, 49, 64, 81, 100 ... 	<ul style="list-style-type: none"> • Students find all the squared numbers in the multiplication tables. • Using Geoboards <ol style="list-style-type: none"> a. Place students in heterogeneous cooperative groups. b. Assign a number for students to create squares. c. Have students create squares using geoboards. d. Have students discuss and report how squared numbers were used. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3 pgs. 159 & 177 • Math Glossary: www.richardphillips.org.uk/number/gl/square.htm • Geoboards 	<ul style="list-style-type: none"> • Students create squared numbers and write in journals how they arrived at their answers. • Draw arrays to show squared numbers for the following: <table style="margin-left: 20px; border: none;"> <tr> <td style="padding-right: 20px;">a. 5</td> <td>b. 6</td> </tr> <tr> <td>c. 2</td> <td>d. 8</td> </tr> </table> 	a. 5	b. 6	c. 2	d. 8
a. 5	b. 6							
c. 2	d. 8							

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 4

Sub-Goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

Essential Questions

1. How can we decide when to use an exact answer and when to use estimation?
2. How are the four basic operations related to one another?
3. How can making equivalent fractions be used to add and subtract fractions?
4. What is the need for a multi-step problem?
5. How do you know when to multiply or divide in a problem solving situation?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
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Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Round whole numbers to the nearest thousand, ten thousand and hundred thousand (Continued).</p>	<ul style="list-style-type: none"> • Rounding is a method used to replace a number with another number that tells about how many or how much. • Rounding Rules <ul style="list-style-type: none"> - Find the place to which you want to round. - Look at the digit to its right. If the digit is less than 5, the digit in the rounding place stays the same. If the digit is 5 or more, the digit in the rounding place increases by 1. -Note: All digits to the RIGHT of the rounding place become zeros. All digits to the LEFT of the rounding place remain the same. • Examples: <ul style="list-style-type: none"> - Round 374 to the nearest ten. * Find the rounding place, Tens * Ask: a. What digit do I look at? The digit in the ones place -4. b. Is it less or more than 5? It is less than 5. c. What happens to the digit in the ones place? It remains the same-7. d. What happens to the digit to the left of the tens place? It remains the same-3. 	<ul style="list-style-type: none"> • Rounding Riddle I am now the number 360 000. I was rounded to the nearest ten thousand. I was the number between 352 678 and 352 680. What number was my original name? <ul style="list-style-type: none"> - The same principle applies for rounding to the nearest ten thousand and hundred thousand. • Rounding Concentration Have two sets of cards: One set with the original numbers and the other set with the matching rounded numbers. <ul style="list-style-type: none"> - Guide students to match pairs of cards and explain choice of selection. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3 Teacher’s Edition Volume 1, pgs. 30 & 31 	<ul style="list-style-type: none"> • Discussion: Explain steps to complete rounding a number to the nearest thousand? • Write in math journal. Draw a number line to show how you would round 543 267 to the nearest thousand. • Quiz Round numbers to the nearest thousand, ten thousand and hundred thousand.

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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Round whole numbers to the nearest thousand, ten thousand and hundred thousand.</p>	<p>e. What happens to the digit to the right of the tens place? It becomes a zero. Therefore, 374 rounded to the nearest ten is 370.</p> <p>Round 374 to the nearest hundred</p> <ul style="list-style-type: none"> • Find the rounding place: hundreds. Ask: <ul style="list-style-type: none"> - What digit do I look at? The digit in the tens place: 7 - Is it (7) less or more than 5? It is more than 5 - What happens to the digit in the hundreds place? It increases by 1 (3 + 1). - What happens to the digits to the right of the hundreds place? They become zeros. • Therefore, 374 rounded to the nearest hundred is 400. <p>- Round 2641 to the nearest thousand. To round to the nearest thousand, follow the rounding rules. Therefore, 2 641 rounded to the nearest thousand is 3 000.</p>			

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Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; additions, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>2. Round decimals to the nearest whole, tenth, and hundredth.</p>	<ul style="list-style-type: none"> • Steps involved in rounding decimals. <ol style="list-style-type: none"> a. Find the rounding place. Look at the digit to the right of the rounding place. b. If the digit is 5 or greater, add 1 to the rounding digit. If the digit is less than 5, leave the rounding digit as it is. c. Make the digits to the right of the rounding digit zeros. <p>Examples</p> <ul style="list-style-type: none"> -Round \$7.42 to the nearest dollar. It is closer to \$7.00 than \$8.00. -Round 15.54 to the nearest tenth. Ans. 15.50 -Round 8.639 to the nearest hundredth. Ans. 8.640. 	<ul style="list-style-type: none"> • Wheel of Decimals <ul style="list-style-type: none"> - Design a sectioned wheel with a spinner and decimal numbers.  <ul style="list-style-type: none"> - Guide student to spin the spinner and round the number that the spinner lands on to the nearest whole number, tenth, or hundredth. <ul style="list-style-type: none"> • Food Store Shopping <ol style="list-style-type: none"> a. Create a food store setting with priced items. b. Have students go on a shopping spree where they estimate the cost of specific items to the nearest whole, tenth, or hundredth. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 4 pgs. 428 & 429 Teacher's Edition Volume 1 	<ul style="list-style-type: none"> • Quiz: Round decimals to the nearest whole, tenth, and hundredth. • Discussion: Steps to take when rounding decimal numbers.
<p>3. Recall multiplication and division facts working toward a goal of 3 seconds or less per fact (Continued).</p>	<ul style="list-style-type: none"> • Multiplying is a way to find out how many in all, when groups have the same number of items. • Numbers that are multiplied to find a product are called factors. 	<ul style="list-style-type: none"> • Have students create multiplication raps. • Multiplication Tag <ol style="list-style-type: none"> a. Create a set of multiplication fact cards. 	<ul style="list-style-type: none"> • Harcourt Math Bk.3 Teacher's Edition Volume 1, pgs. 518 & 519. 	<ul style="list-style-type: none"> • Explain how the dividend and the product are alike. (Each tells the total number). • Quiz Write the missing factor/s

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Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basic operations: addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>3. Recall multiplication and division facts working toward a goal of 3 seconds or less per fact .</p>	<ul style="list-style-type: none"> The answer in a multiplication problem is called the product. <p style="text-align: center;">E.g. $8 \times 9 = 72$</p> <p style="text-align: center;"> $\begin{array}{ccccccc} & \uparrow & & \uparrow & & & \uparrow \\ & \text{Factor} & & \text{Factor} & & & \text{Product} \end{array}$ </p> <ul style="list-style-type: none"> Dividend is a number that is divided by another number. Divisor is the number that divides the dividend. Quotient is the answer in a division problem. <p style="text-align: center;">E.g.: $36 \div 4 = 9$</p> <p style="text-align: center;"> $\begin{array}{ccccccc} & \uparrow & & \uparrow & & & \uparrow \\ & \text{dividend} & & \text{divisor} & & & \text{quotient} \end{array}$ </p>	<p>b. Divide students into “n” teams and stand one behind the other. Teams must provide products for set of facts within “n” minutes.</p> <p>c. Place fact cards on a pile face down. The first person on the line will remove a card and tell the product. If the answer is correct, the person places the card in an area for the Used Cards. The player then runs and tags the person at the back of the line. The tagged person runs to the front of the line and begins this round by removing the card from the top of the Unused pile. The tagged person tells the product for the multiplication fact.</p> <p>NB: If a student provides an incorrect product, he/she must place the card face up on the Unused Pile. He/she then runs and tags the student at the back of the line.</p>		<ul style="list-style-type: none"> Complete each number sentence. Draw an array to help. <p>a. $\square \times 5 = 20$</p> <p>b. $8 \times \square = 24$</p> <p>c. $2 \times \square = 14$</p> <p>d. $14 \div 2 = \square$</p>

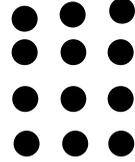
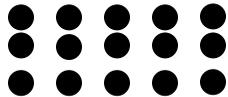
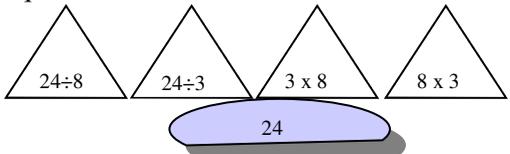
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Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
4. Create and solve multiplication story problems.	<p>Steps in Problem Solving</p> <ul style="list-style-type: none"> • Read the problem carefully • Underline clue words e.g. product, total, area, times • Ask yourself if you've seen a problem similar to this one. If so, what is similar about it? • What do you need to do? • What facts are you given? • What do you need to find out? • Define and try your strategy. • Solve Problems • Reflect: Does it seem probable? 	<ul style="list-style-type: none"> • Draw arrays on grid paper to model problem. • Students will work in small groups to create story problems. Students will show a solution to the problem using manipulatives and pictures. Students will make a final copy so it will be published in a class book. 	<ul style="list-style-type: none"> • http://www.rism.ac.th • http://www.homepages.cambrianc.on.ca/.../mathscience/science/ 	<ul style="list-style-type: none"> • Create and solve story problems

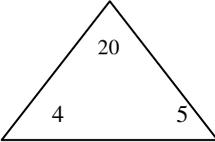
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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>5. Explain division as the inverse of multiplication (Continued).</p>	<ul style="list-style-type: none"> There is an inverse relationship between division and multiplication just like there was between addition and subtraction. e.g The equation $45 \div 5 = 9$ has the inverse relationships: $5 \times 9 = 45$ $9 \times 5 = 45$ Similar relationships exist for multiplication. The equation $3 \times 7 = 21$ has the inverse relationships $21 \div 3 = 7$ $21 \div 7 = 3$ Multiplication and division are opposite or inverse operations. 	<ul style="list-style-type: none"> Draw pictures to show that division is the inverse of multiplication. <div style="text-align: center;">  <p>$4 \times 3 = 12$ $12 \div 4 = 3$</p> </div> Given a specific number of counters, have students arrange them in an array and write the corresponding multiplication and division equations. <p>Example</p> <div style="text-align: center;">  <p>$3 \times 5 = 15$ $15 \div 3 = 5$ or $15 \div 5 = 3$</p> </div> Junkanoo Mathematics Given Junkanoo hat templates with a number written in the centre, have students write the multiplication and division equations for the number. <div style="text-align: center;">  </div> 	<ul style="list-style-type: none"> http://www.mathdrill.com Harcourt Math Bk. 3 Teacher's Edition Volume 1, pgs. 184 & 185 	<ul style="list-style-type: none"> Complete each number sentence. Draw an array to help. <p>a. $2 \times \square = 14$</p> <p>b. $14 \div 2 = \square$</p>

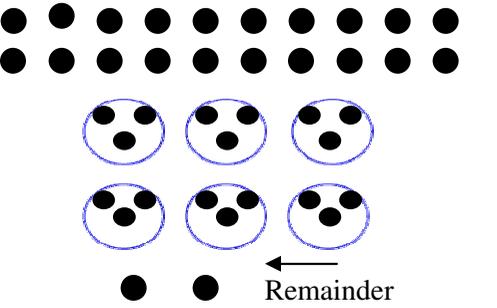
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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
5. Explain division as the inverse of multiplication.		<ul style="list-style-type: none"> Use triangle fact cards to write fact families. e.g. (triangle with 4, 5 and 20 in each corner) <div style="text-align: center;">  <p> $4 \times 5 = 20$ $5 \times 4 = 20$ $20 \div 5 = 4$ $20 \div 4 = 5$ </p> </div>		

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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>6. Explain what a remainder means in a division problem (Continued).</p>	<ul style="list-style-type: none"> To divide means to share a number of items to find how many equal groups can be made or how many items will be in each group. Sometimes you cannot divide numbers or numbers of object evenly. REMAINDER is the amount that is left over when a number cannot be divided evenly. $\begin{array}{r} 6 \text{ r } 1 \\ 6 \overline{) 37} \\ \underline{- 36} \\ 1 \end{array}$ <ul style="list-style-type: none"> Divide 37 by 6 Multiply 6 by 6 Subtract 36 from 37 Compare 1<6 <p>The quotient is 6 and the remainder is 1</p> <p>NB: The difference must be less than the divisor.</p> <ul style="list-style-type: none"> Interpreting the remainder is a necessary skill in solving division word problems. 	<ul style="list-style-type: none"> Use counters to show remainders. E.g. use 20 counters. Draw 6 circles  <ul style="list-style-type: none"> Dividing History: Variation of Jeopardy <ol style="list-style-type: none"> Teacher divides the class into teams and has students complete division questions with remainders. <p>Categories: The Lucayans, Columbus Landing, The Loyalists</p> <p>Sample Question: Twenty-seven Lucayans needed to paint their faces. There were 4 bowls of paint. One bowl of paint can decorate 6 faces. How many Lucayans were able to have their faces painted? Explain.</p> 	<ul style="list-style-type: none"> Primary Social Studies Bk. 4 Tourism Education for The Bahamas Harcourt Math Bk. 3, pgs. 502 & 503 	<ul style="list-style-type: none"> Write missing numbers on the fact card for division problems. Discuss: when do you have a remainder in a division problem? Record and solve division problems that have remainders.

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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
6 Explain what a remainder means in a division problem.	<p>Sometimes the answer is the remainder, sometimes the remainder is dropped, and sometimes the quotient is increased.</p> <p>For example: thirty-five oranges are placed in crates. A crate can hold 8 oranges. Every crate is filled except one.</p> <p>a. How many full crates are there? 4 b. How many oranges are in the unfilled crate? 3 c. How many crates are needed for all 35 oranges? 5</p> $\begin{array}{r} 4 \\ 8 \overline{) 35} \\ \underline{- 32} \\ 3 \end{array}$			
7. Divide up to a 3-digit dividend by 1-digit divisor with and without remainders (Continued).	<ul style="list-style-type: none"> Steps for division <p>Example: Divide 178 by 3</p> $\begin{array}{r} 59 \\ 3 \overline{) 178} \\ \underline{- 15} \\ 28 \\ \underline{- 27} \\ 1 \end{array}$ <p>-Divide 17 by 3. Place the answer in the tens place.</p>	<ul style="list-style-type: none"> Create a rap, poem, or song about dividing with remainders. Game: Division Wheel <ol style="list-style-type: none"> Class is divided into groups. Students spin a wheel with division problems and solve them. The group with the most correct answers wins the game. 	<ul style="list-style-type: none"> Primary Social Studies Bk. 4 Tourism Education for The Bahamas Harcourt Math Bk. 3 pgs. 540 & 541 www.321know.com/div41_x3.htm 	<ul style="list-style-type: none"> Discussion: The Importance of Alignment in Division Problems Solve three-digit dividend by one digit divisor with and without remainders.

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7. Divide up to a 3-digit dividend by 1-digit divisor with and without remainders.	<ul style="list-style-type: none"> - Multiply by 3 -Subtract 15 from 17. -Bring down 8 ones. Divide the 28 ones. -Multiply 9 by 3 -Subtract 27 from 28. -Compare $1 < 3$ -The quotient is 59 and the remainder is 1 			
8. Find the product of 2 whole numbers when one factor has 2 digits or less and the other has 3 digits or less. (Use estimation, paper, pencil and calculator).	<ul style="list-style-type: none"> • To find about how many, you can estimate. You can use rounding or front-end estimation to estimate products. E.g. 178×13. -Round each number. $ \begin{array}{r} 178 \quad \longrightarrow 200 \\ \times 13 \quad \longrightarrow 10 \\ \hline \text{Multiply} \\ \quad 200 \\ \quad \underline{\times 10} \\ \quad 2\,000 \end{array} $ <ul style="list-style-type: none"> • When numbers are large and the problem involves regrouping, paper, pencil, and calculator are good choices. 	<ul style="list-style-type: none"> • In cooperative groups, students are given flash cards with the multiplier and the multiplicand to find the estimated product. • Students complete problems and report findings to the class. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3. pgs. 524-526. • Newspapers 	<ul style="list-style-type: none"> • Students create and solve multiplication problems using priced articles from newspapers or magazines. • Have students write about the importance of estimating numbers.

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9. Add and subtract columns of numbers.	<ul style="list-style-type: none"> • Steps for Addition Example: $\begin{array}{r} 43 \\ 56 \\ + \underline{21} \end{array}$ <ul style="list-style-type: none"> - Add the ones. Regroup if needed. - Add the tens. Regroup if needed. • Mental-Find the difference $\begin{array}{r} 36 \\ - \underline{25} \end{array}$ Think: $36 = 30 + 6$ $25 = 20 + 5$ <ul style="list-style-type: none"> -Subtract the tens: $30 - 20 = 10$ -Subtract the ones: $6 - 5 = 1$ -Add the differences $10 + 1 = 11$ Therefore, $36 - 25 = 11$ • Addition and subtraction of weeks and days Example: <table style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Weeks</th> <th style="text-align: left;">Days</th> <th style="text-align: left;">Weeks</th> <th style="text-align: left;">Days</th> </tr> </thead> <tbody> <tr> <td>8</td> <td>2</td> <td>12</td> <td>0</td> </tr> <tr> <td>+5</td> <td><u>6</u></td> <td>- 9</td> <td><u>3</u></td> </tr> <tr> <td>14</td> <td>1</td> <td>2</td> <td>4</td> </tr> </tbody> </table> • Maintain skill of addition and subtraction by using hours and minutes. 	Weeks	Days	Weeks	Days	8	2	12	0	+5	<u>6</u>	- 9	<u>3</u>	14	1	2	4	<ul style="list-style-type: none"> • Using a shop setting, with priced items, have students use specific methods to add or subtract. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 4 • Bright Sparks Bk. 4 pgs. 42 & 43 	Create some word problems where students have to decide whether to add or subtract to solve the problem.
Weeks	Days	Weeks	Days																	
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+5	<u>6</u>	- 9	<u>3</u>																	
14	1	2	4																	

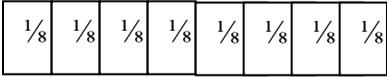
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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
10. Multiply up to 2 digits by digits.	<ul style="list-style-type: none"> • Steps involved in multiplication Eg. Find 37×240 $\begin{array}{r} 37 \\ \times 240 \\ \hline 000 \\ 1480 \\ + 7400 \\ \hline 8880 \end{array}$ - Multiply by the ones. Regroup if necessary. - Multiply by the tens. Regroup if necessary. - Multiply by the hundreds. - Add the partial products. 	<ul style="list-style-type: none"> • Writing to explain The ferry makes 38 one way trips on Saturday and carries an average of 310 people <ul style="list-style-type: none"> - How many people were ferried on Saturday? - If the amount of trips were cut in half, how many people would be ferried on Saturday? a. Students are placed into two groups and are allowed to use calculators. b. Group A challenges group B to complete a similar problem given above by multiplying two digit numbers by three digit numbers. The activity is timed. The group that completes the activity in the shortest time wins. 	<ul style="list-style-type: none"> • Calculator 	<ul style="list-style-type: none"> • Complete worksheet designed by teacher. Example: Multiply and find the product. a. 23×120 b. 97×385

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<p>11. Add and subtract fractions and mixed numbers with like denominators without regrouping.</p>	<ul style="list-style-type: none"> Fractions that have the same denominators are called like fractions. You can use fraction bars to add fractions and to find the sum in simplest form. Like fractions can be subtracted by subtracting the numerators; the denominator stays the same. Example: $5/6 - 1/6 = 4/6$ -Simplify by dividing the numerator and denominator by 2 $\frac{4}{6} \div \frac{2}{2} = \frac{2}{3}$ When adding like fractions, add only the numerators. The denominator remains the same. Example: $\frac{1}{4} + \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$ You can use addition and subtraction basic facts to help you add and subtract like fractions. 	<ul style="list-style-type: none"> Use items in the classroom to show addition and subtraction of like fractions. E.g.: 5 boys and 3 girls sit on chairs in front of class. <ul style="list-style-type: none"> - What fraction are boys? ($5/8$) - What fraction are girls? ($3/8$) - What fraction names the whole group? ($8/8 = 1$) Use fraction bars to add and subtract fractions with like denominators. E.g.: $7/8 - 4/8 = 3/8$  	<ul style="list-style-type: none"> Harcourt Math Bk. 3 pg. 425 	<ul style="list-style-type: none"> Discussion: How do you solve a fraction with like denominators? What key element do you look for? Explain how to use fraction bars to add and subtract fractions with like denominators. Lesson Quiz Use fraction bars to find the sum. $1/4 + 2/4 = 3/4$ $4/10 + 4/10 = 8/10$ or $4/5$ -Use fraction bars to find the difference $11/12 - 6/12 = 5/12$

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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>12. Create and solve story problems involving addition and subtraction of fractions with like denominators.</p>	<p>Steps in Problem Solving</p> <ul style="list-style-type: none"> • Read the problem carefully • Underline clue words e.g. sum, total, difference • Ask yourself if you have seen a problem similar to this one. If so, what is similar about it? • What do you need to do? • What facts are you given? • What do you need to find out? • Define and try your strategy. • Solve Problems • Reflect: Does it seem probable? 	<p>Game: Fraction Columbo</p> <ol style="list-style-type: none"> a. Students are placed into mixed ability groups where they follow a map and read clues that send them to different locations in the classroom b. Students are only allowed to return to their seats after they have solved the problem. c. The group that returns quickest with the correct answer is the winner. <p>Questions for Game</p> <ol style="list-style-type: none"> d. Tanya ate $\frac{1}{12}$ of a pineapple and Dot ate $\frac{2}{12}$. What fraction of the pineapple did they eat? e. For a science report, Henry wrote $\frac{2}{4}$ page more than Jason and Kayln combined. Mary wrote $\frac{3}{4}$ page and Bob wrote $1\frac{1}{4}$ pages. How many pages did Henry write? 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3 pgs. 426 & 427 	<ul style="list-style-type: none"> • Discussion: How do you know what operation to use when solving a word problem? • Have students create and solve fractions with like denominators.

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Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>13. Explain why like denominators are needed in the addition and subtraction of fractions.</p>	<ul style="list-style-type: none"> • To add and subtract fractions with unlike denominators, change to equivalent fractions. • Fractions with unlike denominators cannot be added and subtracted unless you find the common denominator. • Without denominators, the number is not a fraction. <p>Eg. $\frac{1}{2} + \frac{1}{4} = \frac{2}{4} + \frac{1}{4} = \frac{3}{4}$</p> <ul style="list-style-type: none"> a. Change one fraction so that they both have the same denominator. One half is the same as two quarters. b. Add the numerators together to find the answer. 	<ul style="list-style-type: none"> • Use fraction bars to find like fractions. • Solve word problems involving fractions. <p>Examples:</p> <ul style="list-style-type: none"> a. A bumblebee is $\frac{4}{5}$ inch long and a firefly is $\frac{1}{2}$ inch long. What is the total length of the insects? b. Find the difference. The fraction of the letters in the word BAHAMAS which are As and the fraction of the letters in the word ABACO which are As. 	<ul style="list-style-type: none"> • Harcourt Math Bk .4 pg. 386 • Fraction bars • Caribbean Primary Mathematics Level 4 	<ul style="list-style-type: none"> • Add and subtract fractions with like denominators. • Create and solve addition and subtraction fraction problems using the names of things Bahamian. Eg. Subtract the fractions. The fraction of the number of Ns that are in Benny cake and conch.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 4**

Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
14. Create and solve one and two step problems involving the four operations.	<ul style="list-style-type: none"> • One operation is used to solve one-step problems. • Two or more operations are used to solve multi-step problems. • Review clue words for the four rules with students. 	<p>Math Baseball</p> <ul style="list-style-type: none"> • Divide class into 2 equal teams. If there is 1 person left over, assign a job (read problems, keep score, etc) • Give each team a name and choose a captain. • Set up bases in 4 areas of the classroom. The first team forms a batting line. The second team gives a word problem. E.g. Wanda eats 2 dillies every day. How many will she eat in 9 days? <p>*The first team member chooses the operation and solves the problem. If the answer is correct, the team player advances to the 1st base. As in a baseball game, players may advance once teammates answer correctly. If a member fails to answer correctly, he/she gets a strike. Three strikes means the team is OUT.</p> <p>- The second team bats and the first team ask the questions.</p>	<ul style="list-style-type: none"> • Newspapers • Magazines 	<ul style="list-style-type: none"> • Students create and solve multi-step problems in their mathematics journals.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

Essential Questions

1. How do you use measurement in your life?
2. Why is it important to estimate?
3. Why is it important to use the correct unit of measurement?
4. Why is it important to know how to convert from one unit of measure to another?
5. What is perimeter and how is it measured?
6. How is telling time on a 24- hour clock different from that of a 12- hour clock?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Estimate and measure length in kilometers, meters, decimeter centimeter and millimeter selecting the appropriate unit when necessary (Continued).</p>	<ul style="list-style-type: none"> • In the metric system, millimetres (mm), centimetre (cm) ,decimetre (dm), metre (m), and kilometre are used to measure length and distance. • Millimetres and centimetres are used to measure very short lengths or distances. • A millimetre is about the thickness of a coin (penny). • A centimetre is about the width of your index finger. • Metres and kilometres are used to measure much greater length or distances. • A metre is about the distance from one hand to the other when arms are stretched out. Your armspan is about 1 metre long. • A decimetre is about the width of an adult’s hand. A kilometre is a little more than half a mile. 	<ul style="list-style-type: none"> • Write four objects that you would measure using centimeter, decimeter, metre, and kilometer. Estimate the lengths and measure the objects. • Choose the unit that you would use to measure: <ol style="list-style-type: none"> a. your little finger b. a five cent coin c. the distance between New Providence and Eleuthera d. the classroom door • Use a centimetre ruler. Estimate and measure the length of various objects (e.g. your pencil) to the nearest centimetres then record your measure. • Game: Smile Metric Style by Deanna Metder <ol style="list-style-type: none"> a. Materials: Metric Rulers crayons or markers pencil construction paper or graph paper. <p>PROCEDURES:</p> <ol style="list-style-type: none"> a. Divide class into groups of four. b. Each student will measure and record the length of each person’s arm in his or her group. 	<ul style="list-style-type: none"> • Harcourt Math 3 Teacher’s Edition Volume 2 pg. 373 • http://www.mathforum.com 	<ul style="list-style-type: none"> • Discuss: Why would it be better to measure the length of the whiteboard in metres rather than in centimetres? • Journal Writing: Why it is important to have more than one unit of measure? • Lesson Quiz: Choose the unit you would use to measure the information below. Write cm, m, or km. <ol style="list-style-type: none"> a. The length of a jitney. b. The length of a eraser. c. The distance from cable beach to Downtown. d. The length of your notebook.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objectives, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Estimate and measure length in kilometres, metres, decimetre centimetre, and millimetre selecting the appropriate unit when necessary.</p>		<p>c. Students check their results against the result of the rest of the group. If there are any discrepancies the students should verify the results as a group.</p> <p>b. When an accurate measurement has been attained for each child, the results are recorded on the board as each child records them at his/her seat.</p> <ul style="list-style-type: none"> • Order all the measurements from least to greatest. • Graph your results. • Find the sum of all the arm lengths in your classroom. Do not forget the teacher's arm. • Create one arm length out of construction paper that is the length of the entire arm in your room. 		

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Explain the relationship among the metric units.	<ul style="list-style-type: none"> • There are two advantages of the metric system. <ol style="list-style-type: none"> a. The metric prefix values are the same for length, weight, and liquid. b. All conversions involve powers of ten. • Several examples of units <ul style="list-style-type: none"> 10 centimetres = 1 decimetre (length) 10 millilitres = 1 decilitre (capacity) 10 hectograms = 1kilogram (weight) 	<ul style="list-style-type: none"> • Estimate and measure the length of three objects in your classroom to the nearest centimetre, decimetre, or metre. Record your measurements. • Students experiment with the units of measurement to discover the relationships that exist between them. 	<ul style="list-style-type: none"> • Mathematics for Elementary Teachers pgs. 566 & 567 • Harcourt Math Bk. 3. pg.377 • rulers 	<ul style="list-style-type: none"> • Discuss the relationship between millilitres to litres. • Write if a bottle’s capacity is 4L, how many milliliters it holds. Explain how you found the answer. • Teacher designs problems. Examples <ol style="list-style-type: none"> a. How many centimetres are in 2 metres? b. How many millimetres are in a centimetres?
3. Convert metric units of length, mass, and capacity (Continued)..	<ul style="list-style-type: none"> • When converting units within the metric system, multiply when you change larger units to smaller units. • A decimetre is larger than a centimetre. Example: 600 dm = _____cm <p>Length of road in decimetres (600). There are 10 cm in 1 dm. Therefore, 600 x 10= 6 000 cm.</p> <ul style="list-style-type: none"> • Divide when you change smaller units to larger units. <ol style="list-style-type: none"> a. A millilitre is smaller than a litre. <p>Example:3 000mL= _____L 3 000 mL ÷ 1 000= 3L</p>	<ul style="list-style-type: none"> • Basket Loss <ol style="list-style-type: none"> a. Students are given five shots at a basketball rim. Each successful shot is 2 000 grams of fat that they will lose on a weight loss plan. b. Students calculate how much weight they would lose after the attempts c. Students convert the numbers of successful shots to grams. • Given the length of several islands of The Bahamas in kilometres, have students convert the distances to metres. 	<ul style="list-style-type: none"> • Map • Atlas • Balances • www.homeschoolmath.net 	<ul style="list-style-type: none"> • Journal Writing: Have students explain how to convert metric units and give illustrations of the same.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Convert metric units of length, mass, and capacity.	<ul style="list-style-type: none"> • Mass is the amount of matter in an object. The metric unit of mass is the gram. The most frequently used metric units of mass is the gram (g) and kilogram (kg). • A kilogram is larger than a gram. Example 4 kg = _____g 1 000 g = 1 kg. Therefore, 4 kg x 1 000 = 4 000g 			
4. Estimate and measure using millilitre and litre.	<ul style="list-style-type: none"> • Capacity is the amount a container will hold when it is filled. • Capacity can be measured by using metric units such as the millilitre (ml) and liter (L) • A dropper holds about 1ml • A glass holds about 250 ml • A water bottle holds about 1L • Vocabulary: millilitre (ml) and litre (L) 	<ul style="list-style-type: none"> • Estimate the number of millimetres that are in a litre. • Pour 1 liter of water at a time into a pitcher. Repeat until the pitcher is full. Record the number of liters. • Estimate and measure the capacity of each of the following objects. Write the objects' capacity in order from least to greatest. <ul style="list-style-type: none"> a. a cup b. a bucket c. a bowl d. a lid from a jar 	<ul style="list-style-type: none"> • Harcourt Math Bk.3 pg. 378 Volume 2 Teachers Edition • milliliter dropper 	<ul style="list-style-type: none"> • Lesson Quiz: Choose the unit you would use to measure the capacity of each. Write ml or L <ul style="list-style-type: none"> a. a sink filled with water. b. a bottle of syrup. c. a mug of soup. d. a jug of liquid detergent E.g. joy

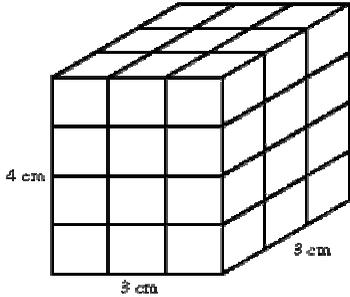
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>5. Use grams and kilograms to estimate and determine mass.</p>	<ul style="list-style-type: none"> • The gram (g) and the kilogram (kg) are metric units used for measuring mass, or the amount of matter in an object. • Mass is how much an object weighs. <ol style="list-style-type: none"> a. A paper clip has a mass of about 1 gram. b. A large book has a mass of about 1 kilogram. 	<ul style="list-style-type: none"> • Find the mass of objects in your classroom. <ol style="list-style-type: none"> a. Place 10 paper clips on one side of the simple balance scale to show 10g. b. Find an object that you think might equal 10g. Use the balance to check. c. Repeat steps “a” and “b” for 25g and 1kg. Use the book to show 1kg. • Name an object that has a mass of each amount. <ol style="list-style-type: none"> a. ‘n’ grams b. ‘n’ kilograms • Students work in groups to estimate and find the mass of various objects. Findings are recorded in a table. 	<ul style="list-style-type: none"> • Harcourt Math Book 3 pg. 380, Teacher’s Edition Volume 2 • gram weights • kilogram weights 	<ul style="list-style-type: none"> • Discuss: Brainstorm and create a list of objects that have a mass of about 1 gram and about 1 kilogram. • Quiz: Choose the better estimate. <ul style="list-style-type: none"> - A watermelon: 10 g or 10 kg. - A table: 12g or 12 kg. - A pen: 7 g or 7 kg.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>6. Explain the concept of volume using words and /or pictures and/or concrete materials.</p>	<ul style="list-style-type: none"> • Volume is the number of cubic units needed to fill a solid figure. • A cubic unit is used to measure volume. • A cubic unit is a cube with a side length of a unit. You can use connecting cubes to show cubic units • Example of concept of volume.  <ul style="list-style-type: none"> • The box is 3 cubes long, 3 cubes wide and 4 cubes high. 9 cubes cover the bottom of the box. There are 4 layers. 36 cubes fill the box. Therefore, it has a volume of 36 cubes. 	<ul style="list-style-type: none"> • Use boxes of various sizes to estimate and find volume. Compare estimation with the actual volume. • Use connecting cubes to find the volume of various objects. Record your findings. 	<ul style="list-style-type: none"> • Mathematics Plus Bk. 4 pgs. 306-309 • Harcourt Math Bk. 3 pg. 399 • Connecting cubes • Boxes • Mathematics In Motion: A Resource Book for Teachers, pg.108 	<ul style="list-style-type: none"> • Journal Writing Todd has a box that is 4 cubes long and 4 cubes wide. The box has a volume of 48 cubes - what is the height of the box? Explain 3 cubes; each layer has 16 cubes <p style="text-align: center;">$16 + 16 + 16 = 48$</p>

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT																
7. Select the appropriate unit for estimating and measuring volume.	<ul style="list-style-type: none"> • Volume is expressed with the word "cubic" as the prefix of the unit being measured. Example: cubic metres • The volume of a solid is the amount of space it occupies. • Volume and capacity are related. A volume of 1 cubic centimeter (cc) can hold 1 millilitre (mL) of water. • The litre is the unit used to measure volume. • In liquids it can be litres, gallons, ounces, pints and quarts. • Using the metric system, mL and kl, are used. • The customary units are ounces, cups, pints, quarts, and gallons. • Volume can be found by multiplying the length, breadth/width, and height of cubes and cuboids. $V = L \times B \times H$ 	<ul style="list-style-type: none"> • Students complete the table in pairs and report their findings. They estimate answers and then calculate to find the actual answers. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>L</th> <th>B</th> <th>H</th> <th>Volume</th> </tr> </thead> <tbody> <tr> <td>2 cm</td> <td>3 cm</td> <td>1 cm</td> <td>?</td> </tr> <tr> <td>4 cm</td> <td>5 cm</td> <td>?</td> <td>60 cc</td> </tr> <tr> <td>?</td> <td>9 cm</td> <td>2 cm</td> <td>72 cc</td> </tr> </tbody> </table>	L	B	H	Volume	2 cm	3 cm	1 cm	?	4 cm	5 cm	?	60 cc	?	9 cm	2 cm	72 cc	<ul style="list-style-type: none"> • Mathematics Plus Bk. 4 • Caribbean Primary Mathematics Bk. 5 pg. 97 	<ul style="list-style-type: none"> • Lesson Quiz: Complete questions to find estimated and actual answers. Students will also be asked to determine which unit to use for estimation.
L	B	H	Volume																	
2 cm	3 cm	1 cm	?																	
4 cm	5 cm	?	60 cc																	
?	9 cm	2 cm	72 cc																	

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
8. Explain the volume concept of a litre by construction.	<ul style="list-style-type: none"> • The standard unit of volume in the metric system is the liter. • One litre is equal to 1000 cubic centimeters in volume. Other units of volume and their equivalents in liters are as follows: millilitre = 0.001 litre 1 centilitre = 0.01 litre 1 decilitre = 0.1 litre 1 kilolitre = 1000 liters 	<ul style="list-style-type: none"> • Teacher fills labeled containers in the class and students answer the following: <ol style="list-style-type: none"> a. List the letters of the containers that hold less than a metre. b. List the letters of the containers that hold more than a metre. c. List the letters of the containers that hold a metre. d. List the letters of the containers in order from least to greatest. • Students fill a box with centimetre cubes. They answer the following questions: <ol style="list-style-type: none"> a. How many cubes are on one layer of the box? b. How many layers are there? c. How many cubes does the box hold? d. How many centimetres long is each side? e. The box is how many centimetres high? 	<ul style="list-style-type: none"> • http://www.books.google.bs/books?isbn=049509191X 	<ul style="list-style-type: none"> • Students explain in mathematics journal the concept of volume.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
9. Solve problems which require the addition and subtraction of metric units.	<ul style="list-style-type: none"> • Understand: What you are asked to find? What information will you need? • Plan: What strategy can be used to solve the problem? • Solve: How can you use the strategy? • Check: What other strategy could you use? • Metric units follow the same format as the addition and subtraction of whole numbers. $\begin{array}{r} 4\text{m } 20\text{ cm} & 4.20\text{ m} \\ + 5\text{m } 85\text{ cm} & \underline{5.85\text{ m}} \\ \hline 10 & 05 \end{array}$ • Heavenn lives 3 562 km from her best friend Sherry, who lives in another country. If Heavenn visits Sherry and returns home, how many kilometers did she travel in all? Example: $3\ 562 \times 2 = 7\ 124\text{ km}$ 	<ul style="list-style-type: none"> • Students are placed in groups. Each group is given a section of the Real Estate Ads in the newspaper. Each group finds the total amount of the land for sale in kilometer. They will find the difference between the sums of their total and another group's total. 	<ul style="list-style-type: none"> • Mathematics Plus Bk. 4. • Newspaper • http://www.edhelper.com 	<ul style="list-style-type: none"> • Solve addition and subtraction problems involving the metric units.

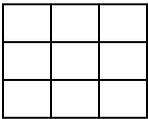
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
10. Read the thermometer in Celsius and Fahrenheit.	<ul style="list-style-type: none"> • Degrees Fahrenheit ($^{\circ}\text{f}$) are customary units of temperature and degrees Celsius ($^{\circ}\text{c}$) are metric units of temperature. • The red substance in the thermometer is the mercury. • To read a thermometer, find the number at the top of the mercury. 20$^{\circ}$ F Read: twenty degrees Fahrenheit 30 $^{\circ}\text{C}$ Read: thirty degrees Celsius. • Water boils at 212$^{\circ}$ F or 100$^{\circ}$ C. • Water freezes at 32$^{\circ}$ F or 0$^{\circ}$ C. • Room temperature is 68$^{\circ}$ F or 20$^{\circ}$ C. 	<ul style="list-style-type: none"> • Estimate the temperature outside the classroom in degrees Celsius and in degrees Fahrenheit. Record your answers. • Practice reading the thermometers on a daily basis for about a week. Record readings each day and create a bar graph. • Place a thermometer in a glass of cool water. Ask students to read the temperature. Change the temperature of water several times by adding ice or hot water to give students additional practice in reading thermometers. Each time you add hot water or ice students predict how the temperature will change. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3 pg. 383, Teacher's Edition 	<p>Lesson Quiz</p> <ul style="list-style-type: none"> • Look at the thermometer. Write the temperature. See page 36a • A cold message. See page 36a <p>Discuss: If you see an outdoor thermometer that shows the temperature as is, is the thermometer showing degree Celsius or degrees Fahrenheit? Explain.</p>

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>11. Estimate and calculate area of objects and shapes using appropriate units.</p>	<ul style="list-style-type: none"> • A square unit is a square with a side length of 1 unit. • Square units measure area. • Area is the number of square units needed to cover a flat surface. • Vocabulary: Area is measured in square units. • To find the area of rectangles multiply the number of rows by the number of squares in each row or count the amount of squared in the diagram. Example: <div style="text-align: center;"> <p>3 rows </p> <p>3 in each row</p> <p>$3 \times 3 = 9$ square units</p> </div>	<ul style="list-style-type: none"> • Find the area of various flat surfaces in the classroom. E.g. Desktop, tabletop, book, floor, etc. using square tiles. Have students estimate and then count the tiles to tell how many. • Have students identify and write examples of finding areas in the real world. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 3 pg. 395 • Mathematics Plus Bk. 4 • graph paper 	<ul style="list-style-type: none"> • Explain how to find the area of a flat surface. • Explain how multiplication can be used to find area. • Find the area of outlines on graph paper. Write the area in square units.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
12. Calculate the area of rectangles using arrays.	<ul style="list-style-type: none"> An array is an arrangement of objects in rows and columns. 	<ul style="list-style-type: none"> Students, in groups calculate the area of rectangles using arrays. Groups report findings. Create songs, poems, or rap about how to find the area of rectangles using arrays. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 pg. 395 	<ul style="list-style-type: none"> Have students write questions for given scenarios. Example: Joan’s scarf is 12 feet wide and 2 feet long. The answer is 24 square feet. Create a rectangle out of different materials (newspaper, boxes, etc) and calculate the area of the same. Answers will vary.
13. Estimate, measure, and calculate perimeter of objects and shapes in metres and centimetres.	<ul style="list-style-type: none"> The distance around a figure is called its perimeter. You can add the lengths of the sides of a figure to find the perimeter. Vocabulary: perimeter 	<ul style="list-style-type: none"> Students name examples of perimeter in the real world E.g. The distance around a book, desk, chalkboard, window door, house, wall, fence, etc. Students find the perimeter of the chalkboard in metres and centimetres. Students record and present their results. Find the perimeter of the classroom in metres. Work in small groups to estimate and find the perimeter of different shapes. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3, pg. 390, Teacher’s Edition. metre rulers centimetre rulers grid papers 	<ul style="list-style-type: none"> Students apply their understanding of perimeter to write a math problem. Students model the following rectangles on grid papers. <ul style="list-style-type: none"> e. 32 square units f. 17 square units g. 63 square units

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
14. Estimate and measure time needed to perform a task.	<ul style="list-style-type: none"> • Some tasks take a short time to perform while other tasks take a longer time to perform. a. 60 seconds = 1 minute 	<ul style="list-style-type: none"> • Perform different tasks E.g. move book from shelf or take a note to the office. Tell which task will take more or less time. Then tell how long it will take to perform each task. 	<ul style="list-style-type: none"> • Harcourt Math Book 3 pg. 94, Teacher’s Edition Volume 1 • stop watch 	<ul style="list-style-type: none"> • Write about 4 tasks that can be done in a minute. • Write about 4 tasks that can be done in a longer time.
15. Use a.m. and p.m. appropriately.	<ul style="list-style-type: none"> • Each day has 24 hours. • A.M. is the time between midnight and noon. • P.M. is the time between noon and midnight. 	<ul style="list-style-type: none"> • Students write three things they do in the morning and three things they do in the afternoon. • Students observe the sun to tell the time of the day. For example, the sun in the east represent the morning, and in the west, the evening. • Create a collage of things done in the a.m. or the p.m. • Using a world map, show students the time zones relative to the Meridian of Greenwich. Ask students the times of major cities given the time of Greenwich. 	<ul style="list-style-type: none"> • Harcourt Math Book 3 pg. 94, Teacher’s Edition Volume 1 • www.harcourtschool.com • clock 	<ul style="list-style-type: none"> • Students debate on their favourite time of the day (a.m. or p.m.). • Students write a story using the terms a.m. and p.m.
16. Read and write time to the nearest minute on a twelve hour clock (Continued).	<ul style="list-style-type: none"> • The hands, numbers, and marks on clocks help you tell what time it is. In one minute, the minute hand moves from one mark to the next. 	<ul style="list-style-type: none"> • Use digital and analog clocks to show and count the minutes on the clock’s face. 	<ul style="list-style-type: none"> • Harcourt Math Book 3 p. 94, Teacher’s Edition Volume 1 • digital clock 	<ul style="list-style-type: none"> • Explain how the hands on the clock work.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
16. Read and write time to the nearest minute on a twelve hour clock.	<ul style="list-style-type: none"> • To find the number of minutes after the hour, count by fives and ones to where the minute hand is pointing. • Using a.m. and p. m. help you know what time of the day or night it is. A.M. is used for the hours from 12 midnight to 12 noon. P. M. is used for the hours from 12 noon to 12 midnight. 	<ul style="list-style-type: none"> • Practice reading and writing the time in two ways. E.g. 18 minutes before 2 or 1:42 	<ul style="list-style-type: none"> • analog clock • www.superteacherworksheets.com 	<ul style="list-style-type: none"> • Lesson Quiz: Read and write times on a clock.
17. Read and write time to the twenty-four hour clock (Continued).	<ul style="list-style-type: none"> • The military tells time using a 24-hour clock, beginning at midnight, which is 0000 hours. So, 1:00 a.m. is 0100 hours, 2:00 a.m. is 0200 hours, and so-on up until 11:00 p.m. which is 2300 hours. • A 24-hour clock is an "extension" of a 12-hour clock. 	<ul style="list-style-type: none"> • In cooperative groups, students match time to 24-hour clock. For example: 4:00 AM -- 0400 hrs 5:00 AM -- 0500 hrs 6:00 AM -- 0600 hrs 12:00 PM -- 1200 hrs 1:00 PM -- 1300 hrs 2:00 PM -- 1400 hrs 3:00 PM -- 1500 hrs 	<ul style="list-style-type: none"> • http://www.usmilitary.about.com • http://www.ehow.com 	<ul style="list-style-type: none"> • Write in journals how the 24 and 12 hour clocks are alike and different. • Create clocks showing 12 and 24 hour times

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT										
17. Read and write time to the twenty-four hour clock.	<ul style="list-style-type: none"> When a 12-hour clock reaches 12:59 and resets to 1:00, the 24-hour clock keeps going to 13:00 and onward. The bigger the hour number is on the clock, the later it is in any given day. Subtract 12 from the hour of any time past 12:00 on the 24-hour clock to find its 12-hour p.m. counterpart. For example, 15:34 minus 12 hours is 3:34 p.m. 	<ul style="list-style-type: none"> Make a game out of the two clocks set up side by side. Cover the 12-hour clock with a piece of construction paper or fabric and have students guess the time on the 12-hour clock, by only looking at the 24-hour clock beside it. When they have a good grasp of the concept, cover the 24-hour clock and have the children guess its time based on the 12-hour clock. 												
18. Convert hours to minutes and vice versa (Continued).	<ul style="list-style-type: none"> Sixty (60) minutes equals one hour. To change minutes to hours, divide by 60. Example: 240 minutes = _____ hours $240 \div 60 = 4$ hours 	<ul style="list-style-type: none"> Time to Partner Up <ol style="list-style-type: none"> Display on the board or wall two lengths of flannel (red and blue) horizontally, one beneath the other. Each flannel is equally divided into 11 blocks and labeled hours and minutes in the initial box. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pg. 114 Mathematics in Motion: A Resource Book for Teachers, pg. 112 	<ul style="list-style-type: none"> Students complete table. <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="text-align: center;">Hrs.</td> <td style="text-align: center;">3</td> <td style="text-align: center;">?</td> <td style="text-align: center;">?</td> <td style="text-align: center;">6</td> </tr> <tr> <td style="text-align: center;">Min.</td> <td style="text-align: center;">?</td> <td style="text-align: center;">120</td> <td style="text-align: center;">240</td> <td style="text-align: center;">?</td> </tr> </tbody> </table>	Hrs.	3	?	?	6	Min.	?	120	240	?
Hrs.	3	?	?	6										
Min.	?	120	240	?										

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
18. Convert hours to minutes and vice versa.	<ul style="list-style-type: none"> • To change hours to minutes, multiply by 60. Example: 3 hours = _____minutes • $3 \times 60 = 180$ minutes 	<p>b. Distribute Velcro-backed cards (with printed numbers) RED for hours and BLUE for minutes.</p> <p>c. Child places the card in the appropriate group. E.g. 360 minutes/BLUE. Student with corresponding hour index card comes and places it in the appropriate RED box. i.e 6 (hours/RED).</p> <p>d. The last student who places his card up calls someone else to go put his card where it belongs. The game continues until all cards are placed correctly.</p> <ul style="list-style-type: none"> • Time Travel <ul style="list-style-type: none"> a. Use a bar graph to highlight travel from a given key point to various destinations. Students convert minutes to hours. 		

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>19. Solve problems involving elapsed time (Continued).</p>	<ul style="list-style-type: none"> Elapsed time: the time that passes from the start of an activity to the end of an activity. The easiest way to find elapsed times is to add from the given time to the expected time. Example: Art class 1:30 p.m. to 2:15 p.m. a. Count from 1:30 to 2:00 = 30 minutes b. Count from 2:00 to 2:15 = 15 minutes c. For the total add 30 and 15 minutes = 45 minutes. Elapsed time is 45minutes 	<ul style="list-style-type: none"> Students form a circle around the classroom. <ol style="list-style-type: none"> Teacher displays a flashcard with a specific time frame. E.g. 3:00 p.m.-4:00 p.m. A selected student randomly chooses a tag card from a bag. The card chosen tells at which intervals students will give the time. E.g. 5 <u>10</u> 15 30 minutes <div style="text-align: center;">↑ selected time</div> The student calls the time. E.g. 3:00 p.m. The next person says 3:10, 3:20, 3:30, 3:40... The goal is to reach the end time while giving the elapsed time. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 pg..99 www.superteacherworksheets.com 	<ul style="list-style-type: none"> In pairs, have students create elapsed time word problems. Groups exchange word problems and solve. Quiz: Write the elapsed time for problems given. For example, The basketball game started at 1:30 a.m. and ended at 3:15 p.m. How long did the game last?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 4**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
19. Solve problems involving elapsed time.		<ul style="list-style-type: none"> • Use Bahamasair’s flight schedule to calculate the time it takes to fly from Nassau to: <ol style="list-style-type: none"> a. Marsh Harbour, Abaco b. Freeport, Grand Bahama c. George Town, Exuma d. Governor’s Harbour, Eleuthera e. Stella Maris, Long Island 		
20. Solve real world problems involving the +, -, x, and ÷ of money	<ul style="list-style-type: none"> • Adding and subtracting money amounts is similar to adding and subtracting whole numbers. • Multiplying and dividing money amounts is similar to multiplying and dividing whole numbers 	<ul style="list-style-type: none"> • In groups, have students solve various problems and report findings. <ol style="list-style-type: none"> a. Find the total price by adding the amounts. E.g. \$ 3.95 + \$4.64 = _____ b. Write the difference in dollars and cents. E.g. \$ 50.00 - 28.98 c. Find the product. \$3.95 x 4 = _____ 	<ul style="list-style-type: none"> • Harcourt Math Book 3 Teacher’s Edition Volume 1 	Lessons Quiz E.g. \$1.53 + 2.27 ----- \$ 142. 39 - 21. 51 ----- Write: Explain how you would solve this problem: \$4.42 + \$ 3.65 = \$8.07

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 4

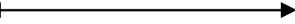
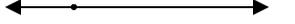
Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

Essential Questions:

1. How are basic geometric ideas (points, lines, angles...) found and used in everyday life?
2. How do the terms slide, flip, and turn relate to translation, reflection, and rotation.
3. How are polygons used in our world?
4. How are geometric properties used to solve problems in everyday life?

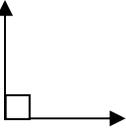
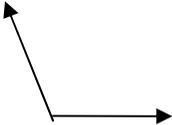
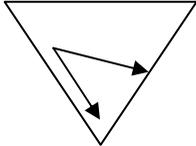
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 4**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Identify, name and draw (using a ruler and straight edge) points, line, line segments, rays and angles.</p>	<ul style="list-style-type: none"> A line is a straight path in a plane. It continues in both directions. It does not end. E.g.  A point is an exact position or location E.g.  A line segment is straight. It is part of a line and it has two end points. E.g.  line segment MN, \overline{MN} or line segment NM, \overline{NM} A ray is part of a line. It has one end point. It is straight and continues in one direction. E.g.  ray FG An angle is formed when two rays or line segments share the same end point. The common endpoint is the vertex. E.g.  	<ul style="list-style-type: none"> Work in small groups to draw lines, points, line segments, rays, and angles on construction paper and grid paper. Make up riddles. E.g. - I am straight and do not have any end points. What am I? Students lie on floor and use their bodies to make angles. Use scissors to make/show acute and obtuse angles. Cut two arms from card board or construction paper and join them together. Have students rotate the arms to indicate size of angles. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teacher's Edition Volume 2 www.harcourtschool.com/glossary/math 	<p>Quiz</p> <ul style="list-style-type: none"> Name each figure. E.g. <div style="text-align: center;">  point A </div> <div style="text-align: center;">  Ray </div> <p>Draw each figure e.g.</p> <ol style="list-style-type: none"> a line a line segment

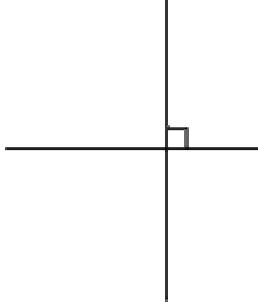
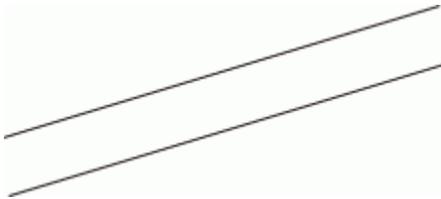
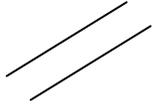
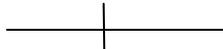
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 4**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>2. Identify right, acute, and obtuse angles.</p>	<ul style="list-style-type: none"> A right angle is a special angle that forms a square corner. A right angle measures 90°. <p>E.g.</p>  <ul style="list-style-type: none"> The measure of some angles is less than a right angle. These are acute angles. <p>E.g.</p>  <ul style="list-style-type: none"> The measure of some angles is greater than a right angle. These are obtuse angles. <p>E.g.</p>  <p>* The unit used to measure an angle is a degree ($^\circ$)</p>	<ul style="list-style-type: none"> Find angles in the classroom and identify them (right, acute, or obtuse angle). Use pipe cleaners to create angles. Game: What is the Angle? Play the game with a partner <ol style="list-style-type: none"> One student selects a flash card and identifies the type of angle. If he/she gets it correct, he/she will get the point. If not, a point is not received. The game is finished when all the cards have been used. The person with the most points is the winner. 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teacher's Edition Flash cards 	<ul style="list-style-type: none"> Use a corner of a sheet of paper to tell whether each angle is a right, acute or an obtuse. <p>E.g.</p>  <p style="text-align: center;">acute angle</p> <ul style="list-style-type: none"> Journal writing <ul style="list-style-type: none"> How do you know whether an angle is obtuse or acute?

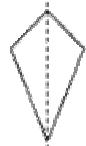
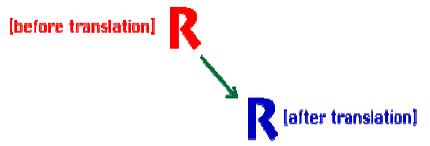
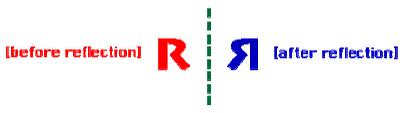
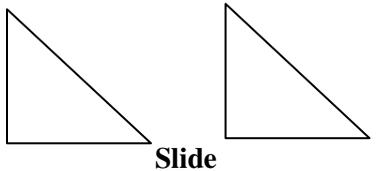
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 4**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>3. Name and identify parallel and perpendicular lines.</p>	<ul style="list-style-type: none"> • Perpendicular lines are lines that cross to form a right angle. Example:  <ul style="list-style-type: none"> • Parallel lines are lines that never cross. Example 	<ul style="list-style-type: none"> • Show perpendicular and parallel lines using sticks or other straight objects. • Use street maps to identify perpendicular and parallel lines. 	<ul style="list-style-type: none"> • enVisionMath Bk 3, p. 242 • toothpicks 	<p>Lesson Quiz: Describe the lines. Write perpendicular or parallel.</p>  <p style="text-align: center;">perpendicular</p>  <p style="text-align: center;">parallel</p>  <p style="text-align: center;">perpendicular</p>

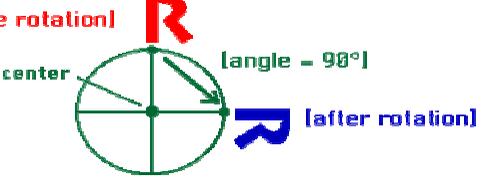
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 4**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
4. Identify shapes with multiple lines of symmetry.	<ul style="list-style-type: none"> A figure has symmetry if it can be folded along a line so that the two parts match exactly, the line is called a line of symmetry. 	<ul style="list-style-type: none"> Trace and fold different paper figures to show lines of symmetry. <p>E.g.</p>  <p style="text-align: center;">Fold</p> <ul style="list-style-type: none"> Draw in lines of symmetry on different shapes. 	<ul style="list-style-type: none"> Game: Challenge 19.1 from Harcourt Math Book 3 Teacher's Edition , pg. 385 	<p>Lesson Quiz</p> <ul style="list-style-type: none"> Which letters has one line of symmetry? O Q X U Which number has multiple lines of symmetry? 5 7 6 8
5. Demonstrate translation (slide), reflection (flip) and rotation (turn). Continued	<ul style="list-style-type: none"> A plane figure can be moved in different ways: translation, reflection, and rotation. You translate a figure when you move it in a straight line.  <ul style="list-style-type: none"> You reflect a figure when you move it over a line. 	<p>Geometry Dance</p> <p>a. Teach students the steps on how to move if you were doing a slide (simply sliding one foot in a horizontal, vertical, or diagonal motion and then moving the other foot to join it).</p> <p>b. A flip (facing one direction, then doing a 180 jump to face the opposite direction), or a turn (one foot stays in place and we rotate 90 degrees for each foot...kind of like a pivot in basketball). I am the "caller" for the dance and they complete the movements as I call them out randomly.</p> <ul style="list-style-type: none"> Play "Simon Says" with these movements. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 http://www.proteacher.org/c/314_Flips_Slides_and_Turns.html 	<ul style="list-style-type: none"> Use cutouts and a grid to show slides, flips, and turns. For example, paste a right angle triangle to show slide, flips, and turns. Flip, slide, and turn different objects. Talk about how objects look after. Tell what kind of motion was used to move each plane figure. Write slide, flip or turn. <p>E.</p>  <p style="text-align: center;">Slide</p>

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 4**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
5. Demonstrate translation (slide), reflection (flip) and rotation (turn).	<ul style="list-style-type: none"> You rotate a figure when you turn it around a point.  <p style="text-align: center;">[before rotation] R [angle = 90°] R [after rotation]</p>			
6. Name, identify, and draw up to 10-sided polygons (Continued).	<ul style="list-style-type: none"> A closed figure begins and ends at the same point. An open figure has ends that do not meet. A circle is an example of a plane figure that has no straight sides. A polygon is a closed plane figure with straight sides that are line segments. <p>Examples of polygons:</p>	<ul style="list-style-type: none"> Name and sort polygons by the number of sides or angles they have. Draw and label polygons. Use Popsicle sticks, straws etc to create polygons. 	<ul style="list-style-type: none"> www.aaamath.com/ Mathematics In Motion: A Resource Book for Primary Teachers, pg. 87 	<ul style="list-style-type: none"> Name places where you have seen circles, polygons, and solid figures. Use a variety of materials to create different polygons and identify number of sides and angles.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 4**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT																														
6. Name, identify, and draw up to 10-sided polygons.	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="3" style="text-align: center;">Names of Polygons</th> </tr> <tr> <th style="text-align: left;">Name</th> <th style="text-align: center;">Sides</th> <th style="text-align: center;">Angles</th> </tr> </thead> <tbody> <tr> <td>Triangle</td> <td style="text-align: center;">3</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Quadrilateral</td> <td style="text-align: center;">4</td> <td style="text-align: center;">4</td> </tr> <tr> <td>Pentagon</td> <td style="text-align: center;">5</td> <td style="text-align: center;">5</td> </tr> <tr> <td>Hexagon</td> <td style="text-align: center;">6</td> <td style="text-align: center;">6</td> </tr> <tr> <td>Heptagon</td> <td style="text-align: center;">7</td> <td style="text-align: center;">7</td> </tr> <tr> <td>Octagon</td> <td style="text-align: center;">8</td> <td style="text-align: center;">8</td> </tr> <tr> <td>Nonagon</td> <td style="text-align: center;">9</td> <td style="text-align: center;">9</td> </tr> <tr> <td>Decagon</td> <td style="text-align: center;">10</td> <td style="text-align: center;">10</td> </tr> </tbody> </table>	Names of Polygons			Name	Sides	Angles	Triangle	3	3	Quadrilateral	4	4	Pentagon	5	5	Hexagon	6	6	Heptagon	7	7	Octagon	8	8	Nonagon	9	9	Decagon	10	10			
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7. Determine the number of faces, edges, and vertices on a given solid.	<ul style="list-style-type: none"> • The face of a solid is a polygon. The surface is flat. • An edge is the line made where two or more faces of a solid figure meet. • Vertex is a point at which two rays of an angle or two or more line segments meet in a plane figure. In solid shapes, it is where three or more sides meet. 	<ul style="list-style-type: none"> • Copy and complete a table putting in number of faces, edges and vertices of given polygon. • Create solid figures and highlight the faces, edges, and vertices. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 4 pg. 50 	<ul style="list-style-type: none"> • Identify the faces, edges, and vertices of solid figures. 																														

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE 4

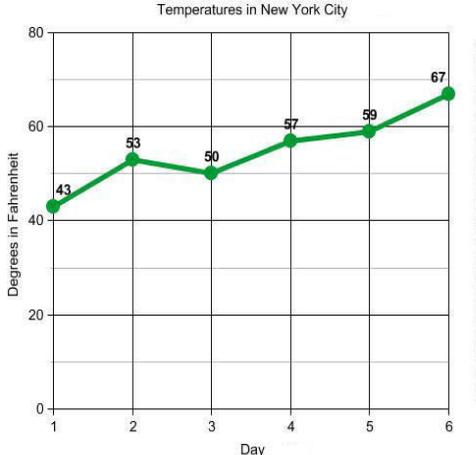
Sub-Goal 6: Collect, organize, and analyze data using statistical methods, predict results, and interpret uncertainty using concepts of probability.

Essential Questions

1. How are bar and line graphs similar and different?
2. Why is it essential to calculate mean/average, median, mode, and range of data?
3. Why is it important to use compensation strategy to find means/averages?
4. How is probability used to predict outcomes?

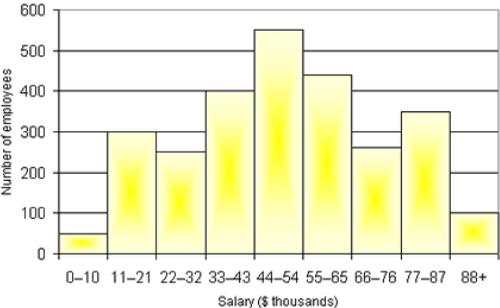
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE 4**

Sub-Goal 6: Collect, organize, and analyze data using statistical methods, predict results, and interpret uncertainty using concepts of probability.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Graph data on a line graph.</p>	<ul style="list-style-type: none"> Information about people or things is called data. Data can be collected and organized in different ways. A line graph connects points to show how data changes over time. <div style="text-align: center;">  <p style="font-size: small;">Copyright © 2007 Mrs. Glazier's Math Goodies, Inc. All Rights Reserved. http://www.mathgoodies.com</p> </div> <ul style="list-style-type: none"> The scale consists of numbers that show the units used on a graph. The interval is the amount between tick marks on the scale. 	<ul style="list-style-type: none"> Students collect data; then show data on line graph. E.g. Number of bicycles that was sold for seven months (January – July) or the temperature recorded for one week etc. Give graphs a title, scale, and labels. Talk about the data collected then show how to place points on the grid for each number in the table. Connect the points to make the line. Analyze line graphs through discussion. <p>Example:</p> <ol style="list-style-type: none"> Does a line graph have a scale? Does a line graph show a range? Does a line graph show a mode? Can you make prediction based on data in line and bar graphs? 	<ul style="list-style-type: none"> Harcourt Math Bk. 3 Teacher's Edition Volume 2 	<ul style="list-style-type: none"> Discuss how horizontal and vertical bar graphs are alike and different Journal Writing: Explain why it is important to choose the right scale for your graph

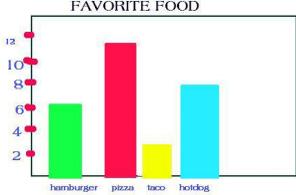
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE 4

Sub-Goal 6: Collect, organize, and analyze data using statistical methods, predict results, and interpret uncertainty using concepts of probability.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT																				
<p>2. Compare and contrast the different uses of bar and line graphs (Continued).</p>	<ul style="list-style-type: none"> • A bar graph uses bars to show data. • Samples such as surveys and inventories are used to collect data. In a vertical bar graph, the bars go up from the bottom. In a horizontal bar graph, the bars go across from the left. • Line graphs show data change over time. • NOTE: Do not confuse bar graphs and histograms. The bars in bar graphs do not touch but in a histogram they do. <p style="text-align: center;">Example of a Histogram Salaries</p>  <table border="1" style="display: none;"> <caption>Salaries Histogram Data</caption> <thead> <tr> <th>Salary (\$ thousands)</th> <th>Number of employees</th> </tr> </thead> <tbody> <tr><td>0-10</td><td>50</td></tr> <tr><td>11-21</td><td>300</td></tr> <tr><td>22-32</td><td>250</td></tr> <tr><td>33-43</td><td>400</td></tr> <tr><td>44-54</td><td>550</td></tr> <tr><td>55-65</td><td>450</td></tr> <tr><td>66-76</td><td>250</td></tr> <tr><td>77-87</td><td>350</td></tr> <tr><td>88+</td><td>100</td></tr> </tbody> </table>	Salary (\$ thousands)	Number of employees	0-10	50	11-21	300	22-32	250	33-43	400	44-54	550	55-65	450	66-76	250	77-87	350	88+	100	<ul style="list-style-type: none"> • Students examine line and bar graphs, and write how each is used in the classroom or in the community. • True or False Line Students examine line and bar graphs where they create true or false questions/statements to describe the use of the graphs. 	<ul style="list-style-type: none"> • enVisionMath Bk 5, pgs. 433-437 & 436-439 	<ul style="list-style-type: none"> • Discuss how line graph and bar graph differ. • Complete Venn diagrams to compare and contrast the different uses of bar and line graphs.
Salary (\$ thousands)	Number of employees																							
0-10	50																							
11-21	300																							
22-32	250																							
33-43	400																							
44-54	550																							
55-65	450																							
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**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE 4**

Sub-Goal 6: Collect, organize, and analyze data using statistical methods, predict results, and interpret uncertainty using concepts of probability.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT										
<p>2. Compare and contrast the different uses of bar and line graphs.</p>	<p>Example of Bar Graph</p>  <table border="1"> <caption>FAVORITE FOOD</caption> <thead> <tr> <th>Food</th> <th>Number of Students</th> </tr> </thead> <tbody> <tr> <td>hamburger</td> <td>6</td> </tr> <tr> <td>pizza</td> <td>11</td> </tr> <tr> <td>taco</td> <td>3</td> </tr> <tr> <td>hotdog</td> <td>8</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • How are bar graphs and line graphs different? <ul style="list-style-type: none"> a. A line graph is a continuous graph and a bar graph is separated. b. A bar graph is composed of bars while the line graph is composed of lines. • How are bar graphs and line graphs alike? <ul style="list-style-type: none"> a. Bar and line graphs are used for collecting and organizing data. 	Food	Number of Students	hamburger	6	pizza	11	taco	3	hotdog	8			
Food	Number of Students													
hamburger	6													
pizza	11													
taco	3													
hotdog	8													

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE 4**

Sub-Goal 6: Collect, organize, and analyze data using statistical methods, predict results, and interpret uncertainty using concepts of probability.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Collect, record, organize, and analyze data for bar and line graphs	<ul style="list-style-type: none"> • Collect data using different techniques (observations, polls, tallying, interviews, surveys, or random sampling) and explain the results. • Organize, display, and read numerical (quantitative) and non-numerical (qualitative) data in a clear, organized, and accurate manner including a title, labels, categories, and whole number and decimal intervals using these data displays <ol style="list-style-type: none"> a. graphs using concrete objects b. pictographs c. bar and line graphs d. Venn diagrams and other pictorial e. displays f. line plots g. charts and tables 	<ul style="list-style-type: none"> • Have students record the number of specific types of vehicles that pass the school. Guide students to record the outcomes on bar graphs. • Use the seven day temperature forecast (printed in the newspaper) where students record data on line graphs. 	<ul style="list-style-type: none"> • enVisionMath Bk 5, pgs. 433-437 & 436-439 • newspaper 	<ul style="list-style-type: none"> • Journal Writing: Students write steps on how to create graphs. • Students create graphs and draw conclusions using a set of data.
4. Explain and calculate the average arithmetical mean of set of data (Continued).	<ul style="list-style-type: none"> • Mean is the average of a set of data. • The mean is found by adding all the addends (numbers) in a set and dividing by the amount of numbers added. Example: Joshua’s scores on his science test: 80, 264, 68. What is his average quiz score? 	<ul style="list-style-type: none"> • Work in small groups to find mean of a set of given numbers. • Create raps, poems, or song to explain how to find the mean. 	<ul style="list-style-type: none"> • enVisionMath Bk 5, pgs. 450 & 451 	<ul style="list-style-type: none"> • Calculate the mean of given data. • Students write mean related problems and provide answers for the same.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE 4**

Sub-Goal 6: Collect, organize, and analyze data using statistical methods, predict results, and interpret uncertainty using concepts of probability.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
4. Explain and calculate the average arithmetical mean of set of data.	Steps a. Add the ones place. Regroup. b. Add the tens place. Regroup. c. Add the hundreds place. d. Divide total/sum by 3 $396 \div 3 = 132$ Joshua's average science score is 132 .			
5. Estimate the average /mean of a set of data using mental arithmetical.	<ul style="list-style-type: none"> To estimate the average/ mean of a set of data, use the compensation strategy for addition. Compensation in math means, adding and subtracting the same number to make the sum or difference easier to find. 	<ul style="list-style-type: none"> Guide students to estimate averages. Use numbers that can be easily adjusted. Example: 3, 5, 4 Take 1 from 5, which is 4. Add the 1 from the 5 to 3 to make 4. You will get 4, 4, 4 The mean is 4 	<ul style="list-style-type: none"> http://www.wiki.answers.com 	<ul style="list-style-type: none"> Students will explain how to use compensation to estimate averages/means.
6. Identify the mode, median, and range of a set of data (Continued).	<ul style="list-style-type: none"> Range is the difference between the greatest number and the least number in a set of data. The median is the middle number in an ordered set of data. <ol style="list-style-type: none"> Put the data in order from least to greatest. Example: 40, 41, 42, 45, 45, 46, 47 The median is 45 	Card Game <ol style="list-style-type: none"> Use only the Ace through 10 cards. Deal out 7 cards to each player (be sure there is a maximum of 4 players). Each player arranges his/her cards in sequential order. Aces count as the number 1. 	<ul style="list-style-type: none"> www.education.com enVisionMath Bk. 4 pg. 414 Mathematics in Motion: A Resource Book for Primary Teachers, pg. 27 	<ul style="list-style-type: none"> Students answer the question in their mathematics journals: What do the mode, median, and range tell you about your class? Participate in a debate to tell if the mode or median is easier and more exciting to identify.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE 4

Sub-Goal 6: Collect, organize, and analyze data using statistical methods, predict results, and interpret uncertainty using concepts of probability.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
6. Identify the mode, median, and range of a set.	<ul style="list-style-type: none"> • Mode is the number or item that occurs most often in a set of data. a. Using the data above the mode is 45 b. The range is $47 - 40 = 7$ 	<ul style="list-style-type: none"> d. Each player finds the median card in his or her hand and that number is his or her point value for that round. e. Players then find the mode and range of the numbers. • Students can use their shoe sizes, ages, or height to identify, mode, median, and ranges. 		
7. Perform simple experiment and record probability.	<ul style="list-style-type: none"> • Probability is the chance that an event will happen. • An event is certain if it will always happen. • An event is impossible if it will never happen. • Vocabulary: event impossible, probability, certain, likely, unlikely. 	<ul style="list-style-type: none"> • Create spinners with names of government buildings (e.g. hospitals, libraries, schools). Have students manipulate the spinner and record the results. • Debate to tell if there is a strategy to win the game. 	<ul style="list-style-type: none"> • Mathematics in Motion: A Resource Book for Primary Teachers, pg. 32 	<ul style="list-style-type: none"> • Journal Writing: A bag contains 10 blue marbles, 6 red marbles, 2 green marbles, and 1 white marble. Describe events that are certain, impossible, likely, and unlikely to happen when you pull a marble from this bag. • Rotten Apple: Create “n” cutouts of apples. Write the word rotten on the backside of “n” apples. Place the apples in a bag where students alternately pull an apple from the bag. If students pull a “good” apple out of the bag, he/she remains in the game. If a rotten apple is pulled, the student is out. When all the apples are removed, the students will write probabilities for good and rotten apples.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE 4

Sub-Goal 6: Collect, organize, and analyze data using statistical methods, predict results, and interpret uncertainty using concepts of probability.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
8. Write probability as a fraction or ratio.	<ul style="list-style-type: none"> • There are several ways of writing the probability. You can write probability as a fraction or a ratio. 1 out of 8 – probability 1/8- fraction 1 to 8- ratio 3:8-ratio 	<ul style="list-style-type: none"> • Use scenarios where students will write probability as a fraction or a ratio. • Students create game cards with possible solutions. 	<ul style="list-style-type: none"> • Mathematics in Motion: A Resource Book for Primary Teachers, pg. 30 	<ul style="list-style-type: none"> • Lesson Quiz: Write probability as fractions or ratios. • Orally discuss the difference between probability as fractions or ratios.

Scope of Work

Primary School Mathematics

Grade 5

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

Essential Questions

1. Where are numbers to a billion found and how do they affect our daily lives?
2. How can expanded notation of numbers help explain a number's value?
3. How does estimation, rounding, comparing, ordering/operations of whole numbers, and decimals aid problem solving?
4. What are prime and composite numbers?
5. How are factors and multiples beneficial in math?
6. When are fractions and whole numbers used together in real life?
7. What is the relationship between fractions and decimals?

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT									
<p>1. Write numerals and word names to millions.</p>	<ul style="list-style-type: none"> Each group of 3 digits is called a period. A space separates each of the periods. The number 259 792 257 has three periods: ones, thousands, and millions. Place value and periods help you read and write numbers in standard form. 259 792 257 <ul style="list-style-type: none"> a. Word Form: two hundred fifty- nine million, seven hundred ninety- two thousand, two hundred fifty- seven. b. Expanded form $200\,000\,000 + 50\,000\,000 + 9\,000\,000 + 700\,000 + 90\,000 + 2\,000 + 200 + 50 + 7$. Reading and writing numbers are symbolic activities and should follow much modeling and talking about numbers. 	<ul style="list-style-type: none"> Complete the following chart. <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #cccccc;">Standard Form</th> <th style="background-color: #cccccc;">Word Form</th> <th style="background-color: #cccccc;">Expanded Form</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">54 060 900</td> <td style="text-align: center;">?</td> <td style="text-align: center;">50 000 000+ 4 000 000+ 60 000+ 900</td> </tr> <tr> <td style="text-align: center;">?</td> <td style="text-align: center;">twelve thousand, three hundred, sixty-eight</td> <td style="text-align: center;">?</td> </tr> </tbody> </table> Create game cards in sets of threes: <ul style="list-style-type: none"> a. Standard Form: 603 b. Word Form: Six hundred, three c. Expanded Form: $600 + 3$ Play concentration type game 	Standard Form	Word Form	Expanded Form	54 060 900	?	50 000 000+ 4 000 000+ 60 000+ 900	?	twelve thousand, three hundred, sixty-eight	?	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pgs. 8-11; Helping Children Learn Mathematics pg. 186 Harcourt Math Newsroom video: Supernova Blast 	<ul style="list-style-type: none"> Students complete Practice and Problem Solving, on page 10 of Harcourt Bk. 4 (nos. 24-26, 30)
Standard Form	Word Form	Expanded Form											
54 060 900	?	50 000 000+ 4 000 000+ 60 000+ 900											
?	twelve thousand, three hundred, sixty-eight	?											

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5**

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Identify the place value of digits in whole numbers up to millions.	<ul style="list-style-type: none"> • The period to the left of thousands is millions. • The period to the left of ones is thousands. • The position of a digit represents its value. Ten is the value that determines a new collection. • A symbol for zero exists and allows us to represent symbolically the absence of something. 	<p>Game: Pick and Put</p> <ul style="list-style-type: none"> • Show students a place value chart and ask them to select a numeral from a bag. The card with the numeral will have its position on the other side. The students will correctly place the number in the correct column on the place value chart. 	<ul style="list-style-type: none"> • Mathematics for Elementary Teachers pg. 103 • Harcourt Math Bk. 4 pgs. 8 & 9 • Bag • Cards • Flannel • bowl 	<ul style="list-style-type: none"> • Test: Identify and write the place value of each digit in given numbers.
3. Compare and order whole numbers, fractions, and decimals using $<$, $>$, and $=$ (Continued).	<ul style="list-style-type: none"> • The symbol "$<$" means less than. • The symbol "$>$" means greater than. • The symbol "$=$" means equal to. • Use the above symbols when comparing and ordering fractions, decimals, and whole numbers. 	<ul style="list-style-type: none"> • Race a. Students are placed into three groups. Group A $>$, Group B $<$, and Group C $=$ b. Teacher writes questions on the chalkboard or whiteboard. c. Students place correct symbol to answer the question. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 4 pgs.18-25 • Harcourt Math Bk. 4 pgs. 372, 418, 17 & 18 • Helping Children Learn Mathematics pgs. 291-295, 306 	<ul style="list-style-type: none"> • Students are given sets of numbers. They are to write true or false to describe the condition. <p>Example 16 592 $<$ 16952 True If the answer is false, students explain why.</p>

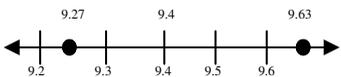
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5

Sub-Goal1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENTS
3. Compare and order whole numbers, fractions, and decimals using $<$, $>$, and $=$ (Continued)	<ul style="list-style-type: none"> • Whole Numbers Compare 23 400 836 and 23 317 600. Step 1 Start with the first place on the left. Compare the ten millions. <div style="text-align: center;"> $\begin{array}{r} 23\ 400\ 836 \\ \downarrow \\ 23\ 317\ 600 \end{array} \quad 2 = 2$ </div> There are the same number of ten millions. Step 2: compare the millions. <div style="text-align: center;"> $\begin{array}{r} 23\ 400\ 836 \\ \downarrow \\ 23\ 317\ 600 \end{array} \quad 3 = 3$ </div> There are the same number of millions. Step 3: compare the hundred thousands. <div style="text-align: center;"> $\begin{array}{r} 23\ 400\ 836 \\ \downarrow \\ 23\ 317\ 600 \end{array} \quad 4 > 3$ </div> Four hundred thousand is greater than three hundred thousand. $23\ 400\ 836 > 23\ 317\ 600$ Comparing Decimals • Order 1.23; 0.98; and 1.28 from least to greatest. 			

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5

Sub-Goal1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENTS												
3. Compare and order whole numbers, fractions, and decimals using $<$, $>$, and $=$ (continued)	<ul style="list-style-type: none"> Line up the decimal points. Compare the digits in the greatest place. $\begin{array}{r} 1.23 \\ \downarrow \\ 0.98 \end{array} \quad 0 < 1$ $\begin{array}{r} 1.23 \\ \downarrow \\ 1.28 \end{array}$ Since $0 < 1$, then 0.98 is the least number. Step 2: Compare the tenths. $\begin{array}{r} 1.23 \\ \downarrow \\ 1.28 \end{array} \quad 2 = 2$ There is the same number of tenths. Step 3: Compare the hundredths $\begin{array}{r} 1.23 \\ \downarrow \\ 1.28 \end{array} \quad 3 > 8$ So, the order from least to greatest is 0.98; 1.23; 1.28 	<ul style="list-style-type: none"> Students use number line to order numbers. Example: 9.4; 9.63; and 9.27 from greatest to least.  So the order is 9.63, 9.4, 9.27 What's your answer? Use the data in this table. These are data about the countries of the United Kingdom. <table border="1"> <thead> <tr> <th>Country</th> <th>Area Thousandths of km²</th> <th>Population (millions)</th> </tr> </thead> <tbody> <tr> <td>England</td> <td>50.363</td> <td>46.221</td> </tr> <tr> <td>N.Ireland</td> <td>5.452</td> <td>1.543</td> </tr> <tr> <td>Scotland</td> <td>30.415</td> <td>5.131</td> </tr> </tbody> </table> Answer these questions <ol style="list-style-type: none"> Order the countries from least to greatest in terms of population. Order the countries from greatest to least in terms of area. 	Country	Area Thousandths of km ²	Population (millions)	England	50.363	46.221	N.Ireland	5.452	1.543	Scotland	30.415	5.131		
Country	Area Thousandths of km ²	Population (millions)														
England	50.363	46.221														
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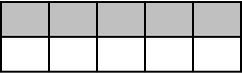
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5

Sub-Goal1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENTS
3. Compare and order whole numbers, fractions, and decimals using $<$, $>$, and $=$.	<ul style="list-style-type: none"> Write the decimal from greatest to least order. Example: 0.813; 0.6; 0.65 <p>0.813 think $8 > 6$, so 0.813 is the greatest</p> <p>0.6 0.600 0.6 is equivalent to 0.600</p> <p>↓</p> <p>0.65 0.650 0.65 is equivalent to 0.650</p> <p>0.65 0.650 $0 > 5$, so 0.6 is the least</p> <p>The order from least to greatest is 0.6; 0.65; 0.813</p>			
4. Order fractions, decimals, and whole numbers in ascending and descending order.	<ul style="list-style-type: none"> Ordering fractions shows which is more, less, or equal. Symbols such as $>$, $<$, or $=$ are used to order fractions, decimals and whole numbers. Example $1/6 < 1/2 < 2/3$ 	<ul style="list-style-type: none"> Compare given fractions using fraction bars. <p>Example: Compare $1/2$ and $2/3$ by using fraction bars.</p> <p>Step 1. Start with the bar. For 1, line up fraction bar for $1/2$.</p> <p>Step 2. Line up the fraction bar for $2/3$. Compare the two rows of fraction bars. The longer row represents the greater fraction.</p> <ul style="list-style-type: none"> Students use the number line to order fractions, decimals, and whole numbers. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pgs. 20, 372, 418 Mighty Math Number Heroes CD 	<ul style="list-style-type: none"> Have students order fractions, decimals, and whole numbers on a number line.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5**

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>5. Explain the difference between even/ odd numbers, whole numbers, fractions, decimals, and perfect squares (Continued).</p>	<ul style="list-style-type: none"> • Even numbers are divisible by 2 and end with a digit of 0, 2, 4, 6, or 8. Example 2 ; 48 ; 4 000 • Odd numbers are not divisible by 2. Odd numbers always end with a digit of 1, 3, 5, 7, or 9. Example 47 ; 139; 47 003 • Whole numbers (one of the numbers 0, 1, 2, 3, 4 ... The set of whole numbers go on without end. • Fractions are equal parts of a whole or a region. • Decimals: Numbers with one or more digits to the right of the decimal point. • A square number is the product of two equal factors. Example: $7 \times 7 = 49$; $6 \times 6 = 36$ • To find some square numbers start by multiplying 1×1. So 1 is a square number. • The square root of a number is one of the 2 equal factors of the product. 	<ul style="list-style-type: none"> • Use grids to identify fractions and decimal numbers. <div style="text-align: center;">  </div> <p>Read: five tenths Write : $5/10$ or 0.5</p> <ul style="list-style-type: none"> • Hocus Pocus <ol style="list-style-type: none"> a. Students will select a word from a bag (fraction, decimal, even, odd, and square numbers). They will not be allowed to view the term they have selected. b. Student A will select a peer (B) who will define the term. If the student A is satisfied with the definition, the teacher will select a term for student B and ask him/ her to explain the difference between the two. c. Student A will be responsible for defining the term student B selected. Some cards will have the definitions at the back. 	<ul style="list-style-type: none"> • Harcourt Math pgs. 298-299, 406 • Mathematics for Elementary Teachers pg.194 • bag • cards 	<ul style="list-style-type: none"> • Students create dictionaries with vocabulary words, definitions, and example.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5**

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
5. Explain the difference between even/ odd numbers, whole numbers, fractions, decimals, and perfect squares (Continued).	<ul style="list-style-type: none"> • Another way to write 3×3 is 3^2. This is read as three squared. 			
6. Use the terms sum, difference, product, quotient, factor, divisor, dividend, and remainder appropriately (Continued).	<ul style="list-style-type: none"> • Sum: The answer to an addition problem. In the addition equation $a + b = c$, c is called the sum. • Difference: The answer to a subtraction problem. In the subtraction equation $b - c = d$, d is the difference, • Product: The result of multiplication Example: $7 \times 9 = 63$ 63 is the product • Quotient: The number, not including the remainder, that results from dividing. • Factor: Describe parts of any multiplication problem such as $2 \quad \times \quad 5 \quad = \quad 10$ $\uparrow \quad \text{factors} \quad \uparrow \quad \quad \quad \uparrow$ product 	<ul style="list-style-type: none"> • Define Me <ol style="list-style-type: none"> a. Student selects four classmates to form a group. b. The first student selects a term out of a bag and defines it. c. He/she then takes the bag to his group member who selects another term (sum, difference, product, quotient, divisor, dividend) and defines 'it' until all are defined correctly. (Time and compare results) 	<ul style="list-style-type: none"> • Harcourt Math Bk. 4 pgs. 34 & 35, 40-46, 412-306 • bags 	<ul style="list-style-type: none"> • Have students identify terms of equations and solve them.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5**

Sub-Goal1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENTS																		
6. Use the terms sum, difference, product quotient, factor, divisor, dividend, and remainder appropriately.	<ul style="list-style-type: none"> • Dividend: The number that is to be divided in a division problem. • Divisor: The number that is used to divide the dividend • Remainder: The amount left over after you find the quotient. 																					
7. Identify equivalent fractions and decimals (Continued).	<ul style="list-style-type: none"> • Fractions that name the same amount are called equivalent fractions. • You can use fraction strips or multiplication to find equivalent fractions. 	<ul style="list-style-type: none"> • Have students use fraction bars to find equivalent fractions. <table border="1" style="margin-left: auto; margin-right: auto; text-align: center;"> <tr> <td colspan="6">1</td> </tr> <tr> <td colspan="2">1/3</td> <td colspan="2">1/3</td> <td colspan="2">1/3</td> </tr> <tr> <td>1/6</td> <td>1/6</td> <td>1/6</td> <td>1/6</td> <td>1/6</td> <td>1/6</td> </tr> </table> <ul style="list-style-type: none"> • Have students create decimal models that are equivalent. 	1						1/3		1/3		1/3		1/6	1/6	1/6	1/6	1/6	1/6	<ul style="list-style-type: none"> • Harcourt Math Bk. 4 pgs. 366 and 412 • Equivalent fractions: http://www.harcourtschool.com/elab 2002 	<ul style="list-style-type: none"> • Students discuss how to find equivalent fractions. • Students write a poem, rap, or a skit on equivalent decimals.
1																						
1/3		1/3		1/3																		
1/6	1/6	1/6	1/6	1/6	1/6																	

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5**

Sub-Goal1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENTS																																				
7. Identify equivalent fractions and decimals.	<p>Find equivalent fraction for $\frac{5}{6}$.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="12" style="text-align: center;">1</td> </tr> <tr> <td colspan="2" style="text-align: center;">$\frac{1}{6}$</td> </tr> <tr> <td style="text-align: center;">$\frac{1}{12}$</td> </tr> </table> <ul style="list-style-type: none"> • Another way to find equivalent fraction is to use multiplication. • Multiply the numerator and denominator by 2. $\frac{5}{6} = \frac{\underline{5} \times 2}{6 \times 2} = \frac{10}{12}$ • Verifying equivalent fractions In one group, 18 out 30 students ($\frac{18}{30}$) prefer guineps to sea grapes and in a second group 24 out of 40 students ($\frac{24}{40}$) prefer guineps over sea grapes. How do the group preference compare? Since $\frac{18}{30} = \frac{3}{5}$ and $\frac{24}{40} = \frac{3}{5}$, the same fraction of each group prefers guineps and sea grapes. • Equivalent decimals name the same number. Example: $0.2 = 0.20$ 	1												$\frac{1}{6}$		$\frac{1}{12}$																								
1																																								
$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$																														
$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$																													

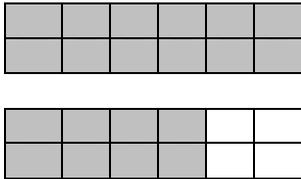
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENTS
<p>8. Simplify fractions to lowest terms.</p>	<ul style="list-style-type: none"> • Simplest form: fractions with a numerator and denominator that have only 1 as a common factor. <p>Example Find the simplest form of 45/60. Try 5 Divide the numerator and denominator by 5. $\frac{45}{60} = \frac{45 \div 5}{60 \div 5} = \frac{9}{12}$</p> <p>Next try 3. Divide the numerator and denominator by 3. $\frac{9}{12} = \frac{9 \div 3}{12 \div 3} = \frac{3}{4}$</p>	<ul style="list-style-type: none"> • Equivalent Blast <ol style="list-style-type: none"> Give students fractions to simplify. The winner explains what he/she did before the next problem is given. The student with the most correct responses wins. • Psyche <ol style="list-style-type: none"> Students work in groups. One member is blind folded and given facts about an unseen fraction by a group member. E.g. its HCF is 4. When broken down into its simplest form, the fraction is $\frac{1}{2}$. The blind folded student has to give the correct fraction. <ul style="list-style-type: none"> • Working is done by the group members. Teacher provides the original fraction. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 4 pgs. 368, 372, 418 	<ul style="list-style-type: none"> • Journal Entry: Explain how fractions are simplified. Create and solve three problems.

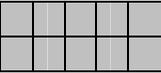
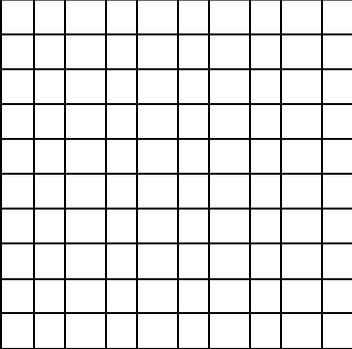
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENTS
<p>9. Explain the relationship between fractions and whole numbers.</p>	<ul style="list-style-type: none"> A mixed number is made up of a whole number and a fraction. Use models to help students to understand this concept. Example 1 $1\frac{8}{12}$  <ul style="list-style-type: none"> Reduce mixed fractions when possible Example $1\frac{8}{12} = 1\frac{2}{3}$ 	<ul style="list-style-type: none"> Write a mixed number for each picture  <p style="text-align: center;">$1\frac{3}{4}$</p> <ul style="list-style-type: none"> Game: Model This. <ol style="list-style-type: none"> Students model the following questions as a group e.g. <ol style="list-style-type: none"> You have 3 pans, each with $\frac{4}{5}$ of a pizza. How many pizzas do you have? $6\frac{3}{7} = 5\frac{10}{7}$. The group that completes the activity first with the correct model wins. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pg. 378 Helping Children Learn Mathematics pg. 296 	<ul style="list-style-type: none"> Have students create a wall display to show mixed numbers.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENTS
10. Read and write decimals through thousandths (Continued).	<ul style="list-style-type: none"> A decimal is a number with one or more digits to the right of the decimal point. If one hundredth were divided into ten equal parts, each part would represent one thousandth. You can use a place value chart to help you understand thousandths. <p>Ones Tents Hundredths Thousandths 0 • 4 7 2</p> <p>Standard form 0.472</p> <p>Word Form Four hundred seventy two thousandths</p> <p>Expanded Form 0.4 + 0.07 + 0.002</p>	<ul style="list-style-type: none"> Have students use graph paper to identify how to write decimals to thousandths. <div style="text-align: center;">  </div> <p>Fraction: 1/10 Decimal: 0.1</p> <div style="text-align: center;">  </div> <p>Fraction: 1/100 Decimal: 0.01</p>	<ul style="list-style-type: none"> Helping Children Learn Mathematics pgs. 406-410 Harcourt Math Bk. 4 pgs. 410 and 411 Graph paper 	<ul style="list-style-type: none"> Create a “cheer” to tell how to write/read decimals.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5**

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENTS																
11. Convert fractions to decimals and vice-versa.	<ul style="list-style-type: none"> Understanding fractions that have a denominator of 10 or 100 will help you understand decimals. <p>Example Write the fraction using a denominator of 10 or 100. What decimal shows the same amount as $\frac{1}{2}$? $\frac{1}{2} = \frac{1}{2} \times \frac{5}{5} = \frac{5}{10} = 0.5$ So, $\frac{1}{2}$ is the same as 0.5</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Example: Fraction</td> <td style="width: 50%;">Decimal</td> </tr> <tr> <td>Write: $\frac{6}{10}$</td> <td>Write: 0.6</td> </tr> <tr> <td>Read: six tenths</td> <td>Read: six tenths</td> </tr> </table> <ul style="list-style-type: none"> You can write a decimal for a fraction that has a denominator other than 10 or 100. <p>Example: $\frac{3}{5} = 0.6$</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">3 divided by 5</td> <td style="width: 50%; text-align: right;"> $\begin{array}{r} 0.6 \\ 5 \overline{) 3.0} \\ \underline{- 30} \\ 00 \end{array}$ </td> </tr> </table> <ul style="list-style-type: none"> A number line divided into 100 equal parts can be used to model fractions and decimals that name the same amount in tenths or hundredths. 	Example: Fraction	Decimal	Write: $\frac{6}{10}$	Write: 0.6	Read: six tenths	Read: six tenths	3 divided by 5	$\begin{array}{r} 0.6 \\ 5 \overline{) 3.0} \\ \underline{- 30} \\ 00 \end{array}$	<ul style="list-style-type: none"> Write each decimal as a fraction. <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">1) Oxygen: 0.47 0.08</td> <td style="width: 50%;">2) Aluminum $\frac{8}{100}$</td> </tr> <tr> <td style="width: 50%; text-align: center;">$\frac{47}{100}$</td> <td style="width: 50%; text-align: center;">$\frac{8}{100}$</td> </tr> <tr> <td style="width: 50%;">3) Silicon: 0.28</td> <td style="width: 50%;">4) Iron: 0.05</td> </tr> <tr> <td style="width: 50%; text-align: center;">$\frac{28}{100}$</td> <td style="width: 50%; text-align: center;">$\frac{5}{100}$</td> </tr> </table> <ul style="list-style-type: none"> Use the number line to show equivalent fractions and decimals. 	1) Oxygen: 0.47 0.08	2) Aluminum $\frac{8}{100}$	$\frac{47}{100}$	$\frac{8}{100}$	3) Silicon: 0.28	4) Iron: 0.05	$\frac{28}{100}$	$\frac{5}{100}$	<ul style="list-style-type: none"> Helping Children Learn Mathematics pg. 204 Harcourt Math Bk. 4 pg. 406 	<ul style="list-style-type: none"> Complete journal entries to explain how to convert between fractions and decimals.
Example: Fraction	Decimal																			
Write: $\frac{6}{10}$	Write: 0.6																			
Read: six tenths	Read: six tenths																			
3 divided by 5	$\begin{array}{r} 0.6 \\ 5 \overline{) 3.0} \\ \underline{- 30} \\ 00 \end{array}$																			
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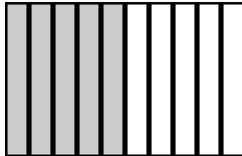
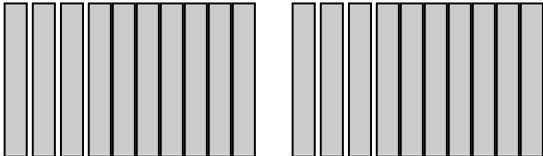
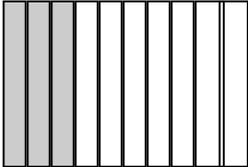
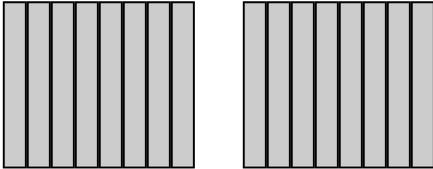
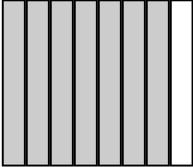
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENTS
12. Round decimals to nearest tenths, hundredths, and thousandths.	<ul style="list-style-type: none"> Rules for rounding whole numbers apply. Remember <ol style="list-style-type: none"> Find the place value to which you want to round. Look at the digit to the right. If the digit is less than 5, the digit in the rounding place stays the same. If the digit is 5 or more, the digit in the rounding place is increased by 1. <p>Round 6.079 to the nearest hundredth. Look at the thousandth place ↓ 6.079 Since 9>5, the digit 7 is increased by 1 So 6.079 rounds to 6.08</p> 	<ul style="list-style-type: none"> Use a number line to round to nearest tenths, hundredth, and thousandths. “What is it?” <ol style="list-style-type: none"> Teacher asks questions that are answered in groups (Its academic format). e.g. Questions <ol style="list-style-type: none"> How many tenths are in the number 24.78? How will you round to the nearest tenth? 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pg. 428 Helping Children Learn Mathematics pg. 306 	<ul style="list-style-type: none"> Complete activity chart where students round to the nearest tenth, hundredth, and nearest thousandth.
13. Represent decimals as part of a whole.	<ul style="list-style-type: none"> Decimal fractions are just another notation for tenths, hundredths, and other powers-of-tens as parts of a unit. Partitioning a unit into tenths, results in 10 equal parts. 	<ul style="list-style-type: none"> Use a number line or a decimal model to relate mixed numbers and decimals. Write an equivalent decimal and mixed number for each decimal model. Then write the word form. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pg. 414 Helping Children Learn Mathematics pg. 303 & 304 	<ul style="list-style-type: none"> Create wall/board display to show decimals in relation to wholes.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
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Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>13. Represent decimals as part of a whole (Continued).</p>	<p>Example</p> <p>Model 1: </p> <p>Word: five- tenths Fraction: $\frac{5}{10}$ Decimal: 0.5</p> <p>Model 2:</p> <p> </p> <p>Mixed Number: $2\frac{3}{10}$ Decimal: 2.3 Read: two and three –tenths</p>	<p>Example $2\frac{7}{8}$</p> <p> </p> <p>Decimal: 2.875 Read: Two and eight hundredth, seventy-five thousandths</p>		

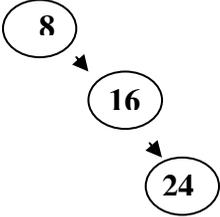
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
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Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENTS
14. Compare and order decimals through thousandths.	<ul style="list-style-type: none"> You can use a number line or place value to order decimals up to thousandths. Remember: On a number line, the numbers to the right are greater than the numbers to the left. <p>Example: Order 0.813, 0.6, 0.65 from least to greatest.</p> <p>0.813 Think: 8>6 so 0.813 is the greatest. ↓ 0.6 0.600 0.6 is equivalent to 0.600 ↓ ↓ 0.65 is equivalent to 0.650 0.65 0.650 0<5 so 0.6 is the least.</p> <p>Therefore from least to greatest: 0.6, 0.65, 0.813</p>	<ul style="list-style-type: none"> Puzzled Arrange these four decimals in the boxes so that the sentence is true. (Remember to do the parts in the parentheses first.) 5.13 4.24 3.84 3.16 (___x 5) + ___ = (4x ___) + ___ 	<ul style="list-style-type: none"> Helping Children Learn Mathematics pg. 306 Harcourt Math pg. 418 	<ul style="list-style-type: none"> Have students use a number line to order given sets of decimals.
15. Identify factors and multiples (Continued).	<ul style="list-style-type: none"> Factors: Numbers that are multiplied. $\begin{array}{ccccccc} 10 & \times & 5 & = & 10 \\ \uparrow & & \uparrow & & \uparrow \\ \text{factors} & & & & \text{product} \\ & & & & \text{(multiple of 10 and 5)} \end{array}$ <ul style="list-style-type: none"> Multiples: The product of two factors. 	<ul style="list-style-type: none"> Teacher places cards on the table with multiples written on them. Students give the factors for the multiples. For example: 56; 20; 72; 48 	<ul style="list-style-type: none"> Harcourt Math Bk.4 pgs. 148 & 298 	<ul style="list-style-type: none"> Complete speed drills to tell factors and multiples of given numbers.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENTS
15. Identify factors and multiples .		<ul style="list-style-type: none"> • Hoola <ol style="list-style-type: none"> a. Place 12 hoola hoops on the floor in a circular pattern. Students will complete rotation by jumping into the hoola hoop. b. Every time a new member enters the hoops, the group moves forward. c. The first student gives a factor of a multiple and jumps into the first hoola hoop if it is correct. If the answer is incorrect, that student sits down and another student tries. c. The second student gives another multiple and so forth until all hoops are emptied. <p>Example: Multiples of 8</p> <div style="text-align: center;">  </div> 		

SCOPE OF WORK
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Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENTS
<p>16. Identify L.C.M and G. C. F. of two numbers (Continued).</p>	<ul style="list-style-type: none"> • Composite numbers are numbers with more than 2 factors. The numbers can be written as a product of prime factors. Example: $9 = 3 \times 3$; 9×1 The composite numbers are 1, 3, 9 • The lowest common multiple (LCM) of two whole numbers is the smallest whole number which is a multiple of both. <ul style="list-style-type: none"> a. For example the multiples of 10 = 10, 20, 30, 40, 50,... multiples of 8 = 8, 16, 24, 32, 40, 48... So the least common multiple of 10 and 8 is 40 or LCM (10, 8) = 40. • The greatest common factor (GCF) of 2 whole numbers is the largest whole number which is a factor both. E.g. Factors of 12 = 1,2,3,4, ,12 Factors of 15 = 1,3,5,15 1 and 3 are common factors. The highest common factor is 3. • Use factor trees as well to find prime factors. 	<ul style="list-style-type: none"> • Bowling Factors <ul style="list-style-type: none"> a. Students bowl down pins using cardinal numbers 0-9. b. Students make a number with the pins that fell. Example: pins 4 ; 0 ; 9 were knocked down. Students will create factors of 49. c. Students find the L. C.M. and H.C.F. of the numbers from the fallen pins. <p>Note: If all pins are knocked down, have the student bowl or try again.</p>	<ul style="list-style-type: none"> • Harcourt Math Bk. 4 pg. 306 • Mathematics for Elementary Teachers pgs. 207, 213, 216, 220 • Bowling pins • balls 	<ul style="list-style-type: none"> • Students create a quiz to find the L.C. M and H. C. F. of numbers. Students also create the answer key.

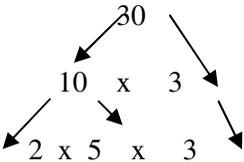
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5**

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENTS
16. Identify L.C.M and G. C. F. of two numbers.	<p>A factor tree of 20</p> <p>Step 1 Find any two factors of 20.</p> $\begin{array}{c} 20 \\ \swarrow \quad \searrow \\ 10 \quad \times \quad 2 \end{array}$ <p>Step 2 Continue factoring until only prime factors are left.</p> $\begin{array}{c} 20 \\ \swarrow \quad \searrow \\ 10 \quad \times \quad 2 \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ 2 \quad \times \quad 5 \quad \times \quad 2 \end{array}$			

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
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Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>17. Write numbers as products of prime numbers using exponential notation where appropriate.</p>	<ul style="list-style-type: none"> A prime number is a positive whole number that has exactly 2 positive divisors, 1 and the number itself. A prime number cannot be factored. Note: 1 is not a prime number because it has only 1 divisor. A composite number has more than two distinct factors (divisors). The product of prime numbers can be represented by the prime factorization method. Example: Write the prime factorization of 60 $60 = 2 \times 2 \times 3 \times 5$ $60 = 2^2 \times 3 \times 5$ You can use a factor tree to find the prime factors of composite numbers. A factor tree of 30 <div style="text-align: center;">  <pre> graph TD 30 --> 10 30 --> 3 10 --> 2 10 --> 5 5 --> 5 5 --> 3 </pre> <p>So $30 = 2 \times 3 \times 5$.</p> </div>	<ul style="list-style-type: none"> Write each number as a product of prime factors using exponential notation where appropriate. 1) 22 2) 120 3) 84 Write the missing factors $150 = _ \times 3 \times 5 \times 5 _$ Pulley Prime <ol style="list-style-type: none"> Use a pulley system to fish three or four prime numbers out of a bucket of water. Students will use the prime number they fished to write numbers as products of prime numbers. They will be allowed to discard one number only. The student with the greatest number (product) is the winner. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pgs. 306 & 307 	<ul style="list-style-type: none"> Students complete a worksheet where they write numbers as products of prime numbers using exponential notation.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 5**

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
18. Use and interpret the language of Mathematics in problem solving (Continued).	<ul style="list-style-type: none"> • Problem Solving Plan in 4 steps. Step 1: Clues <ul style="list-style-type: none"> a. Read the problem carefully b. Underline clue words. c. Ask yourself if you've seen a problem similar to this one. If so, what is similar about it? What did you need to do? d. What facts are you given? e. What do you need to find out? Step 2: Game Plan <ul style="list-style-type: none"> a. Define your game plan. b. Have you seen a problem like this before? Identify what you did. c. Define your strategies to solve this problem. d. Try out your strategies. (Using formulas, simplifying, look for a pattern, etc) e. If your strategy does not work, select another strategy. Step 3: Solve <ul style="list-style-type: none"> a. Use your strategies to solve the problem. 	<ul style="list-style-type: none"> • Give students problems to solve. They will have to suggest the best strategies, the operation to use, and solve the problems. 	<ul style="list-style-type: none"> • http://math.about.com/library 	<ul style="list-style-type: none"> • Students create problems and solve them highlighting the clue words and the mathematics language.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
18. Use and interpret the language of Mathematics in problem solving.	<p>Step 4: Reflect</p> <ul style="list-style-type: none"> a. This part is critical. Look over your solution. b. Does it seem probable? c. Did you answer the question? Are you sure? d. Did you answer using the language in the question? Same units? <ul style="list-style-type: none"> • Clue words for addition: Sum Total In all Perimeter • Clue words for subtraction: Difference How much more Exceed • Clue words for multiplication: Product Total Area Times • Clue words for division: Share Distribute Quotient Average 			

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE: 5

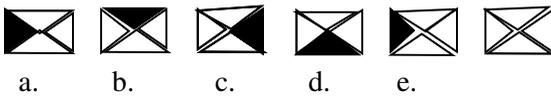
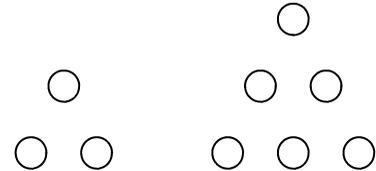
Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationship in data, to solve problems and predict results.

Essential Questions

1. What are the different ways to represent the patterns or relationships?
2. Why are variables used?
3. How can writing algebraic formulas help solve problems with one variable?
4. What strategies can be used to solve for unknowns in algebraic equations?
5. When are algebraic and numeric expressions used?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE: 5**

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, to solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Investigate, describe and extend numerical and geometric patterns including: triangular numbers, perfect squares, patterns formed by powers of tens and arithmetic sequences (Continued).</p>	<ul style="list-style-type: none"> • Numerical Patterns: Patterns that are created using numbers. e.g. Division Patterns $80 \div 20 = 4$ $800 \div 20 = 40$ $8000 \div 20 = 400$ • Geometric Patterns: Geometric Patterns are patterns that are created using geometrical shapes. <p>E.g.</p>  <ul style="list-style-type: none"> • Triangular Numbers: A pattern of numbers that can be shown by dots arranged in the shape of a triangle. Some triangular numbers are 1, 3, 6, 10, 15, 21, 28, 36 • Perfect square is a number that has a whole number as its square root. The square root of a perfect square is a whole number. For example, 0, 1, 4, 9, 16, 25, etc. are all perfect squares. 	<ul style="list-style-type: none"> • Show a variety of numerical and geometrical patterns. Allow students to: <ul style="list-style-type: none"> a. categorize them as Numerical or Geometrical b. provide explanations. <p>Example: Use varied manipulatives to create triangular array.</p> <p>e.g.</p>  <ul style="list-style-type: none"> • Use tangram pieces to create perfect squares. • Create place mats using varied coloured squared pieces. 	<ul style="list-style-type: none"> • Harcourt Math 5 pg. 449 • http://www.wiki.answers.com 	<ul style="list-style-type: none"> • Journal Entry: Have students write to compare/contrast numerical and geometrical patterns. • Create numerical and geometrical patterns • Create triangular arrays and provide justification.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE: 5

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, to solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Investigate, describe and extend numerical and geometric patterns including: triangular numbers, perfect squares, patterns formed by powers of tens and arithmetic sequences.</p>	<ul style="list-style-type: none"> • Powers of ten are numbers that begin with the digits 1 and 0: 10, 100, 1000... • To multiply a whole number by powers of ten, move the decimal point one place to the right for each power of 10. <p>Example: $1.24 \times 10 = 12.4$ $1.24 \times 100 = 124$ $1.24 \times 1000 = 1240$</p>	<ul style="list-style-type: none"> • Take a field trip to inspect the architecture of churches or other buildings. Have students highlight the areas that have square patterns by: <ul style="list-style-type: none"> a. taking photos b. recording via writing c. drawing • Let students create and laminate activity cards or board games. These will require students to complete the patterns with powers of ten. 		<ul style="list-style-type: none"> • Students will compile photo/drawings and write details about patterns. • Complete patterns with powers of ten.
<p>2. Write simple expressions.</p>	<ul style="list-style-type: none"> • A simple expression involves variables, numbers, and operations. • A variable is a letter or symbol that represents an unknown amount that can change. 	<ul style="list-style-type: none"> • In cooperative groups, give students simple expressions to write. Students explain their answers to the class. Examples: a. Mary has x dolls. Her friend gave her 2 more. Write an expression. $X + 2$ b. A number of students divided into 2 teams. $A \div 2$ 	<ul style="list-style-type: none"> • Go Math Bk. 5 pg. 342 • enVision Math Bk. 5 pgs. 146 & 147 	<ul style="list-style-type: none"> • Students create stories and write simple equations of the same. • Complete worksheet with simple equations

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE: 5

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, to solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Solve single variable equations. Using concrete objects pictures or number.	<ul style="list-style-type: none"> A variable equation is a mathematical sentence that has a number and a letter or symbol that stands for one or more numbers. <p>Example: $7 \times b = 56$ $b = 8$</p> <ul style="list-style-type: none"> A variable is a letter that is used in place of a number. 	<ul style="list-style-type: none"> Create equations from given situations. E.g. The reticulated python is the largest snake in the world. At birth it is 2 feet long and some adults are 29 feet long. How much do these pythons grow to reach adult length? <p style="text-align: center;">$2 + f = 29$</p>	<ul style="list-style-type: none"> Harcourt Math 5 pg.72 	<ul style="list-style-type: none"> Create variable equations and provide solutions.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 5

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

Essential Questions

1. How can estimation help you make a reasonable guess?
2. How is estimating sums with decimals like estimating sums with whole numbers?
3. How can I estimate the answers for operations involving two and three digit numbers?
4. What facts are needed to solve problems?
5. How can I recognize what strategy to use for a specific problem?
6. How do operations affect numbers?
7. Why are compatible numbers used for the dividend when estimating quotients?
8. How can divisibility rules help with division?
9. How are division and multiplication related?
10. How can I explain how changing the size of the whole affects the size or amount of a fraction?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 5**

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT														
<p>1. Estimate and create answers to solve single and multi-step problems involving addition and subtraction of whole numbers, money, fractions, and decimals (Continued).</p>	<ul style="list-style-type: none"> • Computational estimation is a process of developing an answer or answers that are close enough to enable good decision with making exact computations. • Exact computations can help by building a better sense of estimating answers first. • Front End Estimation This is where you use only the most important digits , ignore the rest. e.g. <table style="margin-left: 20px;"> <tr> <td style="text-align: right;">\$4.092</td> <td style="text-align: right;">\$4.000</td> </tr> <tr> <td style="text-align: right;">\$7.351</td> <td style="text-align: right;">\$7.000</td> </tr> <tr> <td style="text-align: right;">+ \$8.973</td> <td style="text-align: right;">+ \$8.000</td> </tr> <tr> <td style="text-align: right;">_____</td> <td style="text-align: right;">\$19.00</td> </tr> </table> • Adjusting and compensation Students should be taught that values being analyzed can be seen as a little more, a lot more, or a little less. e.g. Subtraction <table style="margin-left: 20px;"> <tr> <td style="text-align: right;">\$ 7.351</td> <td style="text-align: right;">- \$7.000</td> </tr> <tr> <td style="text-align: right;">- 4.092</td> <td style="text-align: right;">\$4.000</td> </tr> <tr> <td style="text-align: right;">\$ 3.259</td> <td style="text-align: right;">\$3.000</td> </tr> </table> 	\$4.092	\$4.000	\$7.351	\$7.000	+ \$8.973	+ \$8.000	_____	\$19.00	\$ 7.351	- \$7.000	- 4.092	\$4.000	\$ 3.259	\$3.000	<ul style="list-style-type: none"> • Without calculating an exact answer, circle the best estimate for $72 \div 0.025$ <ol style="list-style-type: none"> A lot less than 72 A little less than 72 A Little more than 72 A lot more than 72 • In pairs, students create single and multi-step problems. Another pair in the class solves the problems. Students report findings. • Do I Have Enough <ol style="list-style-type: none"> Students are exposed to the classroom store where items are clearly priced. Students are given a certain amount of money to shop. For example \$15.00. Students are challenged to select four items that when purchased will leave them with more than \$2.00 or less than a \$1.00. 	<ul style="list-style-type: none"> • Helping Children Learn Math Fifth Edition, pg 242 • newspapers magazines etc. • Harcourt Math Bk. 4, pgs. 34, 48 & 49, 188 & 189, 191, 201& 202, 258 & 259, 265, 399,515, 579 • http://www.miley.com 	<ul style="list-style-type: none"> • Worksheet Example: <ol style="list-style-type: none"> Suppose it costs 23¢ to mail a post card to Andros and 37¢ for a letter. Bill wrote to 12 friends and spent \$3.46 for postage. How many letters and how many post cards did he send? You can use guess and check. If two whole numbers have a sum of 18 and a product of 45, what are the numbers? • Write a paragraph explaining a situation where estimation of addition and subtraction of whole numbers, money, fractions, or decimals was beneficial to you.
\$4.092	\$4.000																	
\$7.351	\$7.000																	
+ \$8.973	+ \$8.000																	
_____	\$19.00																	
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**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 5**

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Estimate and create answers to solve single and multi-step problems involving addition and subtraction of whole numbers, money, fractions, and decimals.	<ul style="list-style-type: none"> • Student’s question: If each box contains 79 juice containers, about how much will 5 boxes hold? Student A’s response: 4 x 100 but less than 400. Student B’s response: 5 x 70 is 350 but more than 350 • Compatible numbers also called friendly numbers. Values are easy to compute mentally and seem to go together. For example, 7 and 3 are compatible with 10; thus 70 and 30 are compatible with 100 • 3/7 and 4/7 are compatible in the one whole; thus 30/70 and 40/70 are compatible with one whole. 	<ul style="list-style-type: none"> • Do I Have Enough? <ul style="list-style-type: none"> a. Students are given a certain amount of money (e.g.\$10.00) to shop at the classroom store. b. Students are challenged to select exactly four items that will leave them with more than \$2.00 or less than \$1.00. 		
2. Estimate using several methods including rounding (Continued).	<ul style="list-style-type: none"> • Flexible Rounding: Same rules that are used for rounding numbers. Estimate the result $\begin{array}{r} 29 \\ \times 24 \\ \hline \end{array}$ Students could round 24 to 20 and 29 to 30 $20 \times 30 = 600$ 	<ul style="list-style-type: none"> • Allow students to estimate products and justify their responses. For example: 43 x 29; 63 x 46 • Students collect and compare daily temperatures for 1 week for four countries in different time zones. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 4 pg. 26 • Helping Children Learn Math pgs. 188-191 	<ul style="list-style-type: none"> • Discuss the advantages and disadvantages of rounding numbers.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
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GRADE: 5**

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT						
2. Estimate using several methods including rounding.	<ul style="list-style-type: none"> Flexible numbers can be changed or reformulated. Round number that are close and easy to formulate. This is particularly suited for multiplication. Clustering or averaging: When numbers need to be totaled, some times you can find the answer by estimating an average of them e.g. Estimate the total. <div style="text-align: center;"> <table style="margin: auto;"> <tr> <td style="padding: 0 10px;">52</td> <td style="padding: 0 10px;">60</td> </tr> <tr> <td style="padding: 0 20px;">57</td> <td></td> </tr> <tr> <td style="padding: 0 10px;">67</td> <td style="padding: 0 10px;">64</td> </tr> </table> </div> Now you can take the average and multiply it by how many numbers you have added. 	52	60	57		67	64	<ol style="list-style-type: none"> Students estimate the average weekly temperatures. Students can create a graph of choice to represent the information. <ul style="list-style-type: none"> Have students estimate how many balloons are needed to fill the classroom. Students explain how they arrived at their answer. 		
52	60									
57										
67	64									
3. Round decimals to the nearest tenth, hundredth and thousandth.	<ul style="list-style-type: none"> Rounding whole numbers and rounding decimals are similar processes. To round a decimal to the nearest tenth, first observe the hundredths place. If the number in these places is 4 or less, you drop it and the digit in the tenths place does not change. Example: Round 0.742 to the nearest tenth = 0.7 If the number in thousandths places is 5 or more, the number in the tenths place is increased by 1. Example: Round 0.459 to the nearest tenth = 0.5 Round 1.222 to the nearest hundredth. = 1.22 Round 1.2354 to the nearest thousandths. = 1.235 <ul style="list-style-type: none"> Round the number to the far right if the number is more than 4. 	<ul style="list-style-type: none"> Students estimate various sums and differences and explain the method used to get results. Write various numbers on individual sheets. Form layer of sheets into a cabbage ball. <ol style="list-style-type: none"> Toss the cabbage ball to a student. The student peels the bottom layer of the cabbage ball, reads it, and gives the estimation. This is done until all the layers are unfolded. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pg. 458 	<ul style="list-style-type: none"> Complete a riddle activity Example: If you round my decimal number to the nearest tenth, the sum of my digits is 11. What am I? 0.74 						

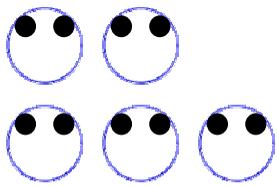
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
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Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division, and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
4. Recall basic addition, subtraction, multiplication, and division facts, with a 3 second per fact standard (Continued).	<ul style="list-style-type: none"> Addition order property: Changing the order of the addends does not change the sum. $\begin{array}{rcc} 9 + 7 & = & 16 \\ \text{addends} & & \text{sum} \end{array}$ $7 + 9 = 16$ Zero property: When you add zero to a number, the sum is that number. $12 + 0 = 12$ $0 + 25 = 25$ Subtraction Facts: Addition and subtraction are related. They are inverse operations. There are 100 basic subtraction facts. These results from the difference between one addend and the sum for all one digit addends. Grouping Property of Addition: When you group addends in different ways, the sums are the same. $9 + (15 + 5) = (9 + 15) + 5$ $9 + 20 = 24 + 5$ $29 \qquad \qquad 29$ 	<ul style="list-style-type: none"> Complete the following. <ul style="list-style-type: none"> a. $5 + 8 = 13 \leftrightarrow 13 - 5 = \underline{\quad}$ b. $9 \times 8 = 72 \leftrightarrow 72 \div 8 = \underline{\quad}$ c. $7 \times 6 = 42 \leftrightarrow 6 + 6 + 6 + 6 + 6 + 6 + 6$ d. $24 \div 4 \leftrightarrow 24 \underline{\hspace{2cm}}$ Facts Feud (Students compete as mathematics strand families. For example, computation and measurement, measurement, and the like). <ul style="list-style-type: none"> a. Two contestants meet at the host's desk where they are given a question. b. Students are allowed 3 seconds to answer after buzzing in. Example of questions: If I shared 309 pennies between 3 people, how many pennies would each child get? c. The team with the most points wins. 	<ul style="list-style-type: none"> www.miley.com/college Helping Children Learn Maths pgs. 207, 218-222 Harcourt Math Bk. 4 pgs. 508-511 	<ul style="list-style-type: none"> Oral Quiz: Students answer questions in three seconds. Example: $9 \times 8 = \underline{\quad}$ $72 \div 8 = \underline{\quad}$

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
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Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division, and multiplication

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
4. Recall basic addition subtraction, multiplication and division facts, with a 3 second per fact standard.	<ul style="list-style-type: none"> The basic multiplication facts each involve two one digit factors and their product. There are 100 basic multiplication facts (from 0×0 to 9×9) Multiplication and division are opposite or inverse operations. One operation undoes the other. Basic division facts rely on the inverse relationship of multiplication and division, but there are only 90 basic division facts (there are no facts with zero as the divisor). 			
5. Explain the meaning of multiplication and division in words and /or pictures.	<ul style="list-style-type: none"> Multiplication can be seen as a special case of addition in which all addends are equal size. Division is the inverse of multiplication; that is, in a division problem you are seeking an unknown factor when the product and some other factor are known. 	<ul style="list-style-type: none"> Use apples and oranges to display fact families where students explain the meaning of multiplication and division.  <p style="text-align: center;">$5 \times 2 = 10 ; 10 \div 5 = 2$</p>	<ul style="list-style-type: none"> Helping Children Learn Maths pgs. 207, 218-222 Mathematics for Elementary Teachers pgs. 120 & 121 	<ul style="list-style-type: none"> Construct a picture sentence to explain the following: <ul style="list-style-type: none"> a. Why is $7 \times \underline{\quad} = 91$ b. Why is $150 \div \underline{\quad} = 20$

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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>6. Multiply up to 2 digits by 3 digits.</p>	<ul style="list-style-type: none"> The procedure for multiplying by two or three digits number is an extension of multiplying by a one-digit number. Use arrays and grids to bridge concrete and symbolic. <p>Examples</p> <p>A.</p> $\begin{array}{r} 29 \\ \times 38 \\ \hline 232 \\ 870 \leftarrow \\ \hline 1002 \leftarrow \end{array} \quad \begin{array}{l} 8 \times 29 \\ 30 \times 29 \end{array}$ <p>B.</p> $\begin{array}{r} 372 \\ \times 28 \\ \hline 16 \\ 560 \\ 2400 \\ 40 \\ 1400 \\ \hline 6000 \\ 10416 \end{array} \quad \begin{array}{l} (8 \times 2) \\ (8 \times 70) \\ (8 \times 300) \\ (20 \times 2) \\ (20 \times 70) \\ (20 \times 300) \end{array}$	<ul style="list-style-type: none"> Complete activity based on Atlantis' staff schedule. <ol style="list-style-type: none"> Students from each group select a card from a bag. Each group begins solving the question at the same time. The group with the most questions correct wins. <p>Example of question: There are 64 workers at Ocean Club Restaurant. If the shift averages 40 hours a week, how many hours do they work for the week.</p>	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pgs. 222-228 Harcourt Math Bk. 4. pgs. 266 & 267 Helping Children Learning Math pgs. 272 & 273 	<ul style="list-style-type: none"> Write three word problems that require multiplication up to 2 digits by 3 digits. Example: Mary, Johnny, and Liz represent a different number. If the product is 540, what are their values? (20 x 3 x 9)

SCOPE OF WORK
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Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division, and multiplication

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
7. Identify and apply different forms of division.	<ul style="list-style-type: none"> Division algorithms can take on different forms. <p>Examples</p> <p>a. $10 \div 2 = 5$ b. $5 \overline{) 10}$</p> <p>c. $10/2 = 5$ d. $1/5$ of $10 = 2$</p>	<ul style="list-style-type: none"> Grab Bag Division <p>a. Students select different parts of an algorithm from a bag. Example 20 , 2, 10.</p> <p>b. Students will select until they have formulated a correct algorithm. Example $20 \div 2 = 10$</p> <p>c. Students who complete correct connection in the shortest time win the game.</p>	<ul style="list-style-type: none"> Harcourt Math Bk. 4. pgs. 250-255 	<ul style="list-style-type: none"> Students solve word problems using the different forms of division.
8. Divide up to 4 digit dividends by 2-digit divisor without and with remainders (long and short method-Continued).	<ul style="list-style-type: none"> Division: This is the most difficult algorithm for children to learn! This two-digit division proceeds through stages from concrete to abstract, paralleling the work with one-digit divisors. <p>Examples:</p> <p>(a) $365 \div 27$ or</p> $\begin{array}{r} \overline{27} 365 \\ 540 \\ 225 \end{array}$ <p>Estimate to place the first digit in the quotient. Think</p> $\begin{array}{r} \overline{13} \\ 30 \overline{) 400} \end{array}$ <p>Place the first digit in the tens place and divide 40 terms. Write a 1 in the terms place in the quotient.</p>	<ul style="list-style-type: none"> In groups, students solve division problems by dividing 4 digits by 2 digit divisors with and without remainders. <p>a. Students explain how they arrived at their answers.</p> <ul style="list-style-type: none"> Students create a poem, song, skit, or rap concerning dividing 4 digits by 2-digit divisor, with and without remainders. 	<ul style="list-style-type: none"> Helping Children Learn Maths pgs. 272-273 Harcourt Math Bk. 4 pgs. 266-267 	<ul style="list-style-type: none"> Written quiz on dividing 4 digits by 2-digit divisor, with and without remainders.

**SCOPE OF WORK
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Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division, and multiplication

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
8. Divide up to 4 digit dividends by 2-digit divisor without and with remainders (long and short method- Continued).	<p>(b) $\begin{array}{r} \underline{400} \\ 20)8000 \end{array}$ $\begin{array}{r} \underline{440} \\ 20)8800 \end{array}$</p> <p>Long Division A.</p> $\begin{array}{r} \underline{1} \\ 27 \overline{) 365} \\ \underline{-27} \\ 95 \end{array}$ <p style="margin-left: 100px;">Multiply 27 x 1 Subtract 36 - 27 Compare 9 < 27</p> <p>(c) Bring down the 5 ones. Divide the 95 ones by 27.</p> $\begin{array}{r} \overline{) 365} \\ \underline{-27} \\ 95 \\ \underline{-81} \\ 14 \end{array}$ <p>B. 18)8894</p> <p>Step 1: Divide the digit in the ten thousands place</p>			

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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
8. Divide up to 4 digit dividends by 2-digit divisor without and with remainders (long and short method- Continued).	<p>Step 2: Divide 88 hundred. Write a 4 in the tens place in the quotient.</p> $\begin{array}{r} \underline{4} \\ 18 \overline{)8894} \\ \underline{-72} \\ 16 \end{array}$ <p>Multiply 18 x 4 Subtract 88 – 72 Compare 16 < 18</p> <p>Step 3 Bring down the 9 tens. Divide the 169 ones.</p> $\begin{array}{r} \underline{494} \\ 18 \overline{)8894} \\ \underline{-72} \quad \downarrow \\ -169 \quad \downarrow \\ \underline{162} \quad \downarrow \\ 74 \\ \underline{-72} \end{array}$ <p>Multiply 18 x 9 Subtract 169 - 162 Compare 7 < 18</p> <p>Step 4 Bring down 4 ones</p> $\begin{array}{r} \underline{494r2} \\ 18 \overline{)8894} \\ \underline{72} \quad \downarrow \\ 169 \\ \underline{162} \quad \downarrow \\ 74 \\ \underline{72} \\ 2 \end{array}$ <p>Multiply 18 x 4 Subtract 74 - 72 Compare 2 < 18</p>			

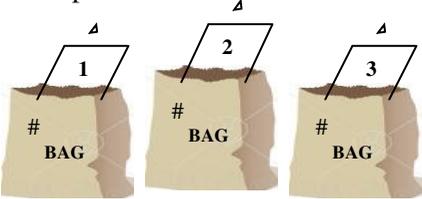
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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
8. Divide up to 4 digit dividends by 2 digit divisor without and with reminders (long and short method).	<ul style="list-style-type: none"> • Ensure that the remainder does not exceed the divisor. • The use of calculators should be aligned with the activities. The calculator is used to strengthen the grasp of the relationship between numbers. • Allow students to divide using objects that are familiar to them. For example guineps, plums etc. 			
9. Use divisibility rules for 2, 3, 5, 10 (Continued).	<ul style="list-style-type: none"> • Divisibility means ‘no remainder after division’. • When to use the rule of divisibility: 	<ul style="list-style-type: none"> • Grab Bag <ol style="list-style-type: none"> a. Place students in groups and give each group 6 grab bags. b. Give each group 2 minutes to correctly match facts on the cards within the grab bags. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 4 pg. 313 	<ul style="list-style-type: none"> • Activity sheet on divisibility

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Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division, and multiplication

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT												
9. Use divisibility rules for 2, 3, 5, 10.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Number</th> <th>Rule</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2</td> <td>Even numbers are divisible by 2</td> </tr> <tr> <td style="text-align: center;">3</td> <td>If the sum of the digit is divisible by 3, then the number is divisible by 3.</td> </tr> <tr> <td style="text-align: center;">5</td> <td>If the last digit is a 5 or 0, the number is divided by 5.</td> </tr> <tr> <td style="text-align: center;">9</td> <td>If the sum of the digits is divisible by 9, then the number is divisible by 9</td> </tr> <tr> <td style="text-align: center;">10</td> <td>If the last digit is 0, the number is divisible by 10.</td> </tr> </tbody> </table> <p>Example 5 766; Strategy: Add the digits $5\ 766 \rightarrow 5 + 7 + 6 + 6 = 24$ Ask: Is 24 divisible by 3? If yes, so is 5 766.</p>	Number	Rule	2	Even numbers are divisible by 2	3	If the sum of the digit is divisible by 3, then the number is divisible by 3.	5	If the last digit is a 5 or 0, the number is divided by 5.	9	If the sum of the digits is divisible by 9, then the number is divisible by 9	10	If the last digit is 0, the number is divisible by 10.	<ul style="list-style-type: none"> • Grab Bag c. Place students in groups and give each group 6 grab bags. d. Give each group 2 minutes to correctly match facts on the cards within the grab bags. e. Students explain their answers to the class. <p>Example:</p> <div style="text-align: center;">  </div> <p>495 Divisible by 5 30 + 6</p> <p>Bags 1 and 2 are compatible.</p>		
Number	Rule															
2	Even numbers are divisible by 2															
3	If the sum of the digit is divisible by 3, then the number is divisible by 3.															
5	If the last digit is a 5 or 0, the number is divided by 5.															
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**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 5**

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division, and multiplication

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT																																																				
<p>10. Multiply and divided by multiples and powers of 10 as a mental arithmetic strategy.</p>	<ul style="list-style-type: none"> Use basic facts and patterns to find quotients mentally. Example: find $1.800 \div 3$ <table style="margin-left: 20px;"> <tr> <td>Dividend</td> <td></td> <td>divisor</td> <td>=</td> <td>quotient</td> </tr> <tr> <td>21</td> <td>\div</td> <td>3</td> <td>=</td> <td>7</td> </tr> <tr> <td>210</td> <td>\div</td> <td>3</td> <td>=</td> <td>70</td> </tr> <tr> <td>2100</td> <td>\div</td> <td>3</td> <td>=</td> <td>700</td> </tr> <tr> <td style="text-align: center;">↑↑</td> <td></td> <td></td> <td></td> <td style="text-align: center;">↑↑</td> </tr> <tr> <td style="text-align: center;">two zeros</td> <td></td> <td></td> <td></td> <td style="text-align: center;">two zeros</td> </tr> </table> <ul style="list-style-type: none"> Basic facts and patterns can be used to help you find products mentally. If you want to find the total number of pennies in 7 rolls of pennies with each roll having 50 pennies <p>50 Think</p> <table style="margin-left: 20px;"> <tr> <td style="text-align: right;"><u>x7</u></td> <td>50 = 5 x 10, or 5 tens</td> </tr> <tr> <td style="text-align: right;">350</td> <td>7 x 5 tens = 35 tens</td> </tr> <tr> <td></td> <td>35 tens = 35 x 10 or 350</td> </tr> </table> <p>Examples</p> <p>7 x 20 = 140 7 x 200 = 1,400 7 x 2,000 = 14,000</p> <p>As the number of zeros in a factor increases, the number of zero in the product increases</p>	Dividend		divisor	=	quotient	21	\div	3	=	7	210	\div	3	=	70	2100	\div	3	=	700	↑↑				↑↑	two zeros				two zeros	<u>x7</u>	50 = 5 x 10, or 5 tens	350	7 x 5 tens = 35 tens		35 tens = 35 x 10 or 350	<ul style="list-style-type: none"> Read My Mind <ol style="list-style-type: none"> Teacher places a card into a hat and gives two facts about it. Example: My quotient is 27 and my dividend is 2700, what is my divisor? Selected students will give answers within 10 seconds. Determine the missing values <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Dividend</th> <th>Divisor</th> <th>Quotient</th> <th>Remainder</th> </tr> </thead> <tbody> <tr> <td>7 200</td> <td>8</td> <td>?</td> <td>?</td> </tr> <tr> <td>732</td> <td>29</td> <td>?</td> <td>?</td> </tr> <tr> <td>?</td> <td>34</td> <td>?</td> <td>20</td> </tr> </tbody> </table>	Dividend	Divisor	Quotient	Remainder	7 200	8	?	?	732	29	?	?	?	34	?	20	<ul style="list-style-type: none"> Mathematics for Elementary Teachers pg. 329 Harcourt Math Bk. 4 pgs. H16, 282 & 283 	<ul style="list-style-type: none"> Students write two problems that can be solved mentally using division or multiplication by powers of 10. Students explain answers to their classmates.
Dividend		divisor	=	quotient																																																				
21	\div	3	=	7																																																				
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SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 5

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division, and multiplication

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
11. Check answers to multiplication and division problems using inverse operations.	<ul style="list-style-type: none"> Multiplication and division are inverse operations or opposite to each other. Example: $4 \times 6 = 24 \leftrightarrow 24 \div 4 = 6$ A set of related multiplication and division equations using the same numbers is a fact family. Example: $9 \times 4 = 36 \quad 36 \div 4 = 9$ $4 \times 9 = 36 \quad 36 \div 9 = 4$ 	<ul style="list-style-type: none"> Inverse Moment <ol style="list-style-type: none"> Students are placed into two groups. One group gives a multiplication sentence while the other group gives the division inverse in less than 5 seconds 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pg.140 Helping Children Learn Maths pg. 200 	<ul style="list-style-type: none"> Explain how to use multiplication to solve a division problem and give an example.
12. Apply the rules of order of operations	<ul style="list-style-type: none"> When evaluating expressions with more than one operation, you need to know which operation to do first. Order of operations is used to solve expressions with more than one operation. Steps to consider: <ol style="list-style-type: none"> First, operate inside the parentheses. Next, multiply and divide from left to right. Then, add and subtract from left to right. Example $3(9 + 7) \div 2$ $3 \times 16 \div 2$ $48 \div 2 = 24$ 	<ul style="list-style-type: none"> What's the Error? <ol style="list-style-type: none"> Students are given expressions where they identify and correct error(s) spotted. Example: $8 + 12 \div 2 - 4 = 6$ 	<ul style="list-style-type: none"> Harcourt Math Bk. 5 pg. 88 	<ul style="list-style-type: none"> Complete Practice and Problem Solving activity on page 89 of Harcourt Math.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 5**

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four basic operations of addition, subtraction, division, and multiplication

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>13. Add and subtract fractions and mixed numbers, with and without regrouping and express answers in simplest terms. (Like and unlike denominators)-Continued</p>	<ul style="list-style-type: none"> • Adding and subtracting fractions can solve problems similar to those with whole numbers. <p>Example: $2/10 + 6/10 = 8/10$</p> <p>a. Write the sum in the simplest form $8/10 = 4/5$</p> <p>b. Regrouping (model)</p> <p style="text-align: center;">● ● ● ● ● ● ⊕</p> <p style="text-align: center;">$6 \frac{3}{7}$ is 6 wholes plus $3/7$</p> <p style="text-align: center;">● ● ● ● ● ⊕ ⊕</p> <p style="text-align: center;">$6/37$ is 5 wholes plus $7/7$ plus $3/7$ or $5 \frac{10}{7}$</p> <ul style="list-style-type: none"> • Children must be encouraged to give reasonable answer. They must be helped to see why a common denomination is necessary when adding on subtracting fractions. • Subtraction with mixed numbers. 			

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 5

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division, and multiplication

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
13. Add and subtract fractions and mixed numbers, with and without regrouping and express answers in simplest terms. (Like and unlike denominator)	$3 \frac{5}{8} - 2 \frac{1}{8}$ Step 1: Subtract the fraction first $\begin{array}{r} 3 \frac{5}{8} \\ - 2 \frac{1}{8} \\ \hline 1 \frac{4}{8} \\ 1 \frac{1}{2} \end{array}$ Step 2: Subtract the whole numbers $\begin{array}{r} 3 \frac{5}{8} \\ - 2 \frac{1}{8} \\ \hline 1 \frac{4}{8} \\ 1 \frac{1}{2} \end{array}$	<ul style="list-style-type: none"> What's the Question? a. In cooperative groups, students are given statements about mixed numbers where they find the questions and justify their responses. Example: Two mixed numbers are $1 \frac{1}{4}$ and $2 \frac{1}{4}$. The answer is $3 \frac{1}{2}$ 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pgs. 392-395 	<ul style="list-style-type: none"> Quiz : Students add and subtract fractions and mixed numbers with and without regrouping.
14. Solve problems involving the addition and subtracting of decimals, using paper and pencil (Continued).	<ul style="list-style-type: none"> Add or subtract like units (tens with tens, hundredths with hundred thousand so forth). Regroup in the decimal places as they did with whole numbers. Use paper and pencil to work out everyday problems based on the topic. What is the error? 	<ul style="list-style-type: none"> Mixed and Match a. A set of students are given flash cards with addition and subtraction problems. Another group of students are given the solutions of their problems. b. Students with the problem flash cards hold them up and work the solutions. The students with the solution cards also work the problems. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pgs. 432-439 Mathematics for Elementary Teachers pgs. 339-340 	<ul style="list-style-type: none"> Students solve given problems. Example: Heavenn ran 1.753 miles on Tuesday as well as on Wednesday. She ran 1.45 miles on Wednesday and Friday. How far did Heavenn run altogether? $1.753 \times 2 = 3.506$ $3.506 + 1.45 = 4.956$ miles

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 5**

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division, and multiplication

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT														
14. Solve problems involving the addition and subtraction of decimals, using paper and pencil.	a bag of plums \$ 2.69 ½ dozen eggs \$ 1.69 jar of guava jam \$ <u>2.93</u> . Answer \$ 7.21 Explain his error and write the correct answer. The student added correctly but left out the decimal point.	c. Teacher says, “Mix and Match”. The students find their partner with the correct response.																
15. Solve whole numbers, decimals, and money computation problems in addition and subtraction with and without regrouping.	<ul style="list-style-type: none"> Remember to expose students to key words that will help in identifying operations. Example <table border="1" style="margin-left: 20px;"> <thead> <tr> <th style="background-color: #cccccc;">Addition</th> <th style="background-color: #cccccc;">Subtraction</th> </tr> </thead> <tbody> <tr> <td>increased by</td> <td>decreased by</td> </tr> <tr> <td>more than</td> <td>minus, less</td> </tr> <tr> <td>combined, together</td> <td>difference between/of</td> </tr> <tr> <td>total of</td> <td>less than, fewer than</td> </tr> <tr> <td>sum</td> <td></td> </tr> <tr> <td>added to</td> <td></td> </tr> </tbody> </table>	Addition	Subtraction	increased by	decreased by	more than	minus, less	combined, together	difference between/of	total of	less than, fewer than	sum		added to		<ul style="list-style-type: none"> Students are divided into groups where they solve different problems. Group leaders report on findings. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pgs. 46 & 47 	<ul style="list-style-type: none"> Students complete activity sheet with addition and subtraction with and without regrouping.
Addition	Subtraction																	
increased by	decreased by																	
more than	minus, less																	
combined, together	difference between/of																	
total of	less than, fewer than																	
sum																		
added to																		

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 5**

Sub-Goal 3: Estimate and understand the meaning, use and connection between the four (4) basic operations; addition, subtraction, division, and multiplication

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT										
15. Solve whole numbers, decimals, and money computation problems in addition and subtraction with and without regrouping.	<ul style="list-style-type: none"> • To challenge students, use problems that involve multiplication and division. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Multiplication</th> <th style="text-align: left;">Division</th> </tr> </thead> <tbody> <tr> <td>of</td> <td>per, a</td> </tr> <tr> <td>times, multiplied by</td> <td>out of</td> </tr> <tr> <td>product of</td> <td>ratio of, quotient of</td> </tr> <tr> <td>increased/decreased by a factor of (this type can involve both addition or subtraction <i>and</i> multiplication!)</td> <td>percent (divide by 100)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Equal: is, are, was, were, will be, gives, yields, sold for • Encourage students to read the content to determine the plan of problems. 	Multiplication	Division	of	per, a	times, multiplied by	out of	product of	ratio of, quotient of	increased/decreased by a factor of (this type can involve both addition or subtraction <i>and</i> multiplication!)	percent (divide by 100)		<ul style="list-style-type: none"> • Harcourt Math Bk. 4 pgs. 46 & 47 	
Multiplication	Division													
of	per, a													
times, multiplied by	out of													
product of	ratio of, quotient of													
increased/decreased by a factor of (this type can involve both addition or subtraction <i>and</i> multiplication!)	percent (divide by 100)													

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 5

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy

Essential Questions

1. How do I estimate and measure?
2. How are the units of measure within a standard system related?
3. How do you decide which unit of measurement to use?
4. What is the difference between perimeter and area? How do you calculate them?
5. How can measurements be used to solve problems?
6. How can measurement strategies help us in geometrical situations?
7. How do you calculate volume of given dimensions? How can you use volume in every day life?
8. Why is conversion of units important in every day life?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 5**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Estimate and measure length using metric units- kilometre, metre, decimetre, centimeter, and millimeter (Continued)..</p>	<ul style="list-style-type: none"> • A Kilometre (km) is about the length of 10 football fields • A metre (m) is about the distance from one hand to the other when you stretch them out. • A decimetre (dm) is about the width of an adult’s hand. • A centimetre (cm) is about the width of your index finger. • A millimetre is one thousandth (1/1000) of a metre. • Students can use reasonable measure of units when measuring objects without the correct tools. <p>Metric 1cm =10 mm 1dm =10 cm 1m =10 dm 1 m = 100 cm</p>	<ul style="list-style-type: none"> • Students : <ul style="list-style-type: none"> a. estimate and record lengths of objects. b. use a centimetre ruler or metre stick to measure items. c. record actual measurements. d. Compare estimated and actual measurements. • Use a metre stick to model decimal numbers. The metre shows the whole number. The decimeters and centimetres are fractional parts of the metre. • Metric Scavenger Hunt: <ul style="list-style-type: none"> a. Print the activity sheets for each pair of students. <p>Examples of items on the sheets</p> <ul style="list-style-type: none"> - Find an object that is 5cm in length. - Find an object that is 4dm in length.. - Find an object that is 7 mm in length. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 4, pgs. 470-473 <ul style="list-style-type: none"> a. Challenge pg. 241 b. Set A Transparency pg. 241 c. Math jingles CD 3-4 • Helping Children Learn Mathematics pg. 390 • www.emints.org • centimetre ruler • metre stick. 	<ul style="list-style-type: none"> • Prepare a News Brief Report to explain how to estimate the length of an object in order to determine the correct unit of measure to use. Students record information on cassette tape.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 5

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT																								
1. Estimate and measure length using metric units- kilometre, metre, decimetre, centimeter, and millimetre.	<table border="1"> <thead> <tr> <th>Prefix</th> <th>Kilo</th> <th>hect</th> <th>deka</th> <th>base</th> <th>deci</th> <th>centi</th> <th>milli</th> </tr> </thead> <tbody> <tr> <td>Symbol</td> <td>k</td> <td>h</td> <td>dk</td> <td></td> <td>d</td> <td>c</td> <td>m</td> </tr> <tr> <td>Measure</td> <td>1000</td> <td>100</td> <td>10</td> <td></td> <td>1/10</td> <td>1/100</td> <td>1/10000</td> </tr> </tbody> </table>	Prefix	Kilo	hect	deka	base	deci	centi	milli	Symbol	k	h	dk		d	c	m	Measure	1000	100	10		1/10	1/100	1/10000	<p>b. Have students cut out the Find Me Cards and place them face down in a stack.</p> <p>Game Rules</p> <p>a. The first player draws a card and tries to find an object with the same length.</p> <p>b. His or her partner measures the object, records its actual length, and finds the difference between the two measurements.</p> <p>c. After recording the measurements in the chart, the second player draws a card.</p> <p>d. The game continues until all cards have been drawn.</p>		
Prefix	Kilo	hect	deka	base	deci	centi	milli																					
Symbol	k	h	dk		d	c	m																					
Measure	1000	100	10		1/10	1/100	1/10000																					

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 5

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Express metric measure using decimals.	<ul style="list-style-type: none"> You can use a meter stick to model decimal numbers. The decimeter and centimeter are fractional parts of the meter. Meter (m) 1.0 meter Deci means tenth. Decimeter = 0.1 or 1/10, meter Centimeter means hundredth. 1 centimeter = 0.01 or 1/100 Example: Write 3.26 meter as meters + decimeters + centimeter Answer: 3 meters + 2 decimeters + 6 centimeters 	<ul style="list-style-type: none"> Complete the following in groups. <ol style="list-style-type: none"> $4/10 \text{ m} = __ \text{ dm}$ Write in expanded form <ol style="list-style-type: none"> $5.49 \text{ m} = __ \text{ m} + __ \text{ dm} + __ \text{ cm}$ $17.84 \text{ m} = __ \text{ m} + __ \text{ dm} + __ \text{ cm}$ 	<ul style="list-style-type: none"> Harcourt Math Bk.4. pg. 473 Thinkers Corner Sheet pg. 473 Reading Strategy Chart 	<ul style="list-style-type: none"> Complete the KWL Chart <ol style="list-style-type: none"> what I know what I learned what I want to know Test: Have students' complete items such as 6 cm and 4 mm can be written in decimal form as _____.
3. Create and solve problems involving linear measure (Continued).	<ul style="list-style-type: none"> Length is a linear measure. The decimeter is a larger unit than a centimeter. When you change larger units to smaller units, you multiply. 	<ul style="list-style-type: none"> Sorting <ol style="list-style-type: none"> Place a box of long thin objects in each group. Have students sort objects (compare lengths of physical objects directly). 	<ul style="list-style-type: none"> Helping Children Learn Mathematics pg. 395 Harcourt Math Bk. 4 pgs. 480 & 481. 	<ul style="list-style-type: none"> Quiz Example: If Mark covers $\frac{3}{4}$ of a meter every step he takes and his sister covers $\frac{1}{2}$ of meter every step she takes. How many meters would each have traveled after ten steps?

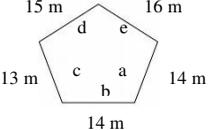
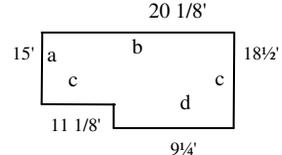
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 5

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>3. Create and solve problems involving linear measure.</p>	<p>Example: In five hours, a mole can dig a tunnel 500 decimeters long. How many centimeters long would the tunnel be?</p> <p style="text-align: center;">1 decimeter in tunnel centimeters</p> $\begin{array}{ccccccc} & & & & & & \\ & & & & & & \\ \downarrow & & & & & & \downarrow \\ 500 & \times & 10 & = & 5,000 & & \downarrow \end{array}$ <p>Think 500 dm = __ cm</p> <p>So the tunnel would be 5,000 centimeters long.</p> <ul style="list-style-type: none"> When you change smaller to larger units, you divide. 	<p>c. Choose one object to be the reference and compare the other objects to that one putting the objects on the sheets marked shorter, same or longer (use objects used in science) to include perimeter.</p> <p>Shorter</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> chalk</div> <div style="text-align: center;"> paper clip</div> <div style="text-align: center;"> duster</div> </div> <p>Same</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> straw</div> <div style="text-align: center;"> pencil</div> <div style="text-align: center;"> tube</div> </div> <p>Longer</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ruler</div> <div style="text-align: center;"> thongs</div> </div>		

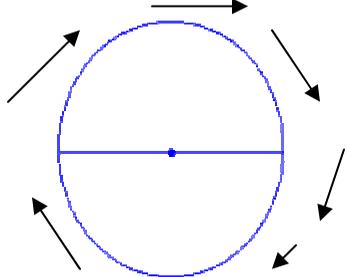
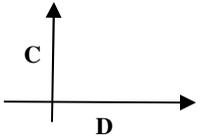
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Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>4. Estimate and measure perimeter of objects.</p>	<ul style="list-style-type: none"> The perimeter is the distance around an object. You can use a formula, or mathematical rule, to find the perimeter. <p>E.g. a perimeter formula for a pentagon is: $P = a + b + c + d + e$ the length of each side is represented by a variable.</p> <ul style="list-style-type: none"> Estimating is the mental process of arriving at a measurement without the aid of measuring instruments. One strategy in estimating measurement is comparing a referent. If you know the perimeter of a student desk, then you can estimate the perimeter of two students' desk. <p>Find the perimeter</p>  <p>Perimeter = $a + b + c + d + e$ $P = 14m + 17m + 13m + 15m + 16m$ $P = 75m$</p>	<ul style="list-style-type: none"> Give students many examples of squares and rectangles to find the perimeter. Discuss, "has anyone found a short cut to calculating the perimeter of a rectangle or a square?" Measure and record the perimeter of certain areas in their school. <p>E.g. Office</p>  <p>$P = a + b + c + d + e$ $P = 15' + 20 \frac{1}{8} + 18 \frac{1}{2} + 9 \frac{1}{4} + 11 \frac{1}{8}$ $P = 74'$</p>	<ul style="list-style-type: none"> Harcourt Math Bk. 4, pgs. 490 & 492 a. Reteach practice, problems 4 b. Solving, challenge 25.2 worksheets. c. Extra practice p.456, set A d. Transparency 25.2 e. Number Heroes f. Math jingles 3-4 pg 48 A h. Harcourt intervention card enrichment book pgs. 49 & 50 i. Intervention Strategies and Activities Teaching. <ul style="list-style-type: none"> http://www.harcourtschool.com/elab 	<ul style="list-style-type: none"> Write a journal entry to explain why the playfield has a larger perimeter than the classroom. Complete activity sheet finding the perimeter of various figures.

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Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT																								
5. Relate linear measure using multiples and submultiples of the metre.	<ul style="list-style-type: none"> You can compare centimeters to meters. 100 centimeters make a meter. Example 350 cm = ___m Divide 350 cm by 100 to convert it to meters: $350 \div 100 = 3.50$ (Move the decimal point two places to the left.). 	<ul style="list-style-type: none"> Estimate and measure the length of 5 objects in your classroom to the nearest centimeter and decimeters. Record estimation in a table. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Object</th> <th>Unit of measure</th> <th>Estimate</th> <th>Measurement</th> <th>Conversion</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td>cm</td> <td></td> <td></td> <td>dm</td> </tr> <tr> <td>2</td> <td></td> <td>m</td> <td></td> <td></td> <td>mm</td> </tr> <tr> <td>3</td> <td></td> <td>km</td> <td></td> <td></td> <td>m</td> </tr> </tbody> </table> <p style="text-align: center;">0.51m ___m + ___dm + ___cm = _____</p>		Object	Unit of measure	Estimate	Measurement	Conversion	1		cm			dm	2		m			mm	3		km			m	<ul style="list-style-type: none"> Harcourt Math Bk. 4, pg 474 <ol style="list-style-type: none"> Reteach 24.1 Problem Solving 24.1 	<p>Quiz Write <, >, or = to complete the following. e.g.</p> <ul style="list-style-type: none"> 5 m ___ 3 cm ___ 30 mm
	Object	Unit of measure	Estimate	Measurement	Conversion																							
1		cm			dm																							
2		m			mm																							
3		km			m																							
6. Identify and describe the circumference of a circle (Continued).	<ul style="list-style-type: none"> The circumference of a circle is the measure of the distance around the circle or its perimeter. <p>Circumference</p> 	<p>Finding diameters and circumferences</p> <ul style="list-style-type: none"> Place students in cooperative groups. Rotate the roles in each group. For example, one student measures, one records the data and one computes the ratio. Each child measures at least one circle depending on time. Use tape measure, string, graph, paper, and circular objects to construct three different size circles. Measure the circumference and diameter of the three circles and determine the ratio between them. Have students make a table. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4, pg. 344 Harcourt Math Bk. 5 pgs. 34 -35 <ol style="list-style-type: none"> Problem solving 18.4 Math Jingles CD 3-4 Track 2 <ol style="list-style-type: none"> Intervention Strategies and Activities CD Rom Skill 75 Geo-Boards 	<ul style="list-style-type: none"> Plot a graph using the data from the table.  <p>-Have each child make observations about the data in their table.</p>																								

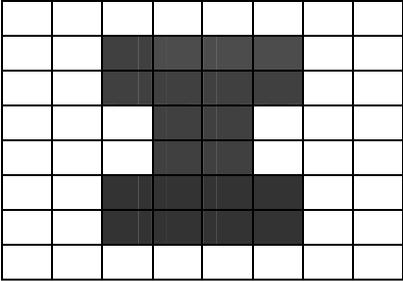
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
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GRADE: 5**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT																				
6. Identify and describe the circumference of a circle.	<ul style="list-style-type: none"> The diameter of a circle is the length of the line through the center and touching two points on its edge. Pi is $\pi = 3.14$ or $22/7$. π originated from studies of the relationship between the circumference and the diameter. The circumference C equals π times the diameter d or $c = \pi d$. Formula for circumference of a circle is $c = \pi d$ or $C = 2\pi r$ 	<table border="1" style="margin-bottom: 10px;"> <thead> <tr> <th></th> <th>Diameter</th> <th>Circumference</th> <th>C/D (Ratio)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> After a table is complete, have students add their data to a class list (on an overhead or at the board). 		Diameter	Circumference	C/D (Ratio)	1				2				3								<ul style="list-style-type: none"> Intervention Strategies and Activities CD Rom Skill 75 Number Heroes Geo-Board Level P, Q Math Jingle CD 3 – 4 Track II 	<ul style="list-style-type: none"> Find the Error: Give students several statements where they find the error and correct them. Example: The diameter of a circle that John measured is 18 inches. John estimated the circumference to be about 6 inches. Describe and correct his error.
	Diameter	Circumference	C/D (Ratio)																					
1																								
2																								
3																								
7. Calculate the area of rectangles and squares using cm^2 , m^2 , and km^2 .	<ul style="list-style-type: none"> Area is the number of square units needed to cover a surface. You can count square units to find area. You can also use a formula for the area of a rectangle. Area = length x width or $A = l \times w$. 	<ul style="list-style-type: none"> Work with a partner. Cut out the triangles below from each of your sheets. Tape them together to form a parallelogram. <div style="text-align: center;"> </div> <ul style="list-style-type: none"> Find the areas of the constructed parallelogram. 	<ul style="list-style-type: none"> Harcourt Math Bk.4 pg. 492 Helping Children Learn Math pg. 404 Mathematics for Elementary Teachers pg. 580 Problem Solving 25.3 Harcourt Math Bk. 4 Intervention Strategies and Activities CD ROM Skill 72-73 	<ul style="list-style-type: none"> Write to explain how to find the area of a square when you know only the length of one side. Construct their own figures and find the areas of the same. 																				

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<p>8. Differentiate between applications of area and perimeter.</p>	<ul style="list-style-type: none"> Two figures can have the same area but different perimeter, or different area but same perimeter. Area is the amount of surface to be covered. Perimeter is the distance around the outside of a figure (object). 	<ul style="list-style-type: none"> Find the area and perimeter of each figure. Then draw another figure that has the same area but different perimeter.  <ul style="list-style-type: none"> Describe situations from real life to students such as “after school, yesterday I had to mow the lawn.” Was this an example involving area or perimeter? Let students tell their stories. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pg. 497 -Reteach 25.4 - Problem Solving 25.4 	<ul style="list-style-type: none"> Use grid sheet and create figures with specified areas and perimeters. Write in mathematics journals how to tell the difference between perimeter and area.
<p>9. Estimate and measure volume with appropriate units.</p>	<ul style="list-style-type: none"> The measure of the space that a solid figure occupies is called volume. Volume is measured in cubic units. You can find volume in two ways: (a) count the numbers of cubes as you build a 6 cube x 2 cube x 3 cube rectangular prism or (b) multiply the length, width and height of the rectangular prism to find the volume in cubic units. 	<p>Find the volume</p> <ul style="list-style-type: none"> Have students estimate the length width and height of boxes. Then have them multiply the dimensions to estimate the volume of the box. Students record the estimated volumes. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pg. 146 a. Practice 26.3 b. Reteach Practice Challenge 26.3 c. Problems Solving 26.3 d. Intervention Strategies and Activities CD ROM Skills 36 	<ul style="list-style-type: none"> Lesson Quiz E.g. Lela has a suitcase that is 30 cm by 60 cm by 10 cm. What is the volume of her suitcase?

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9. Estimate and measure volume with appropriate units (Continued)		<ul style="list-style-type: none"> Have students use centimetre rulers to measure the length, width, and height of each box to the nearest centimetre and multiply to find the volume. -Students record their results and compare them with the guesses. 		<ul style="list-style-type: none"> Complete table on page 515 of Harcourt Math Bk. 4. 																				
10. Express millimetres as litres and vice versa using decimal notations.	<ul style="list-style-type: none"> Millilitres (mL) and a litres (L) are metric units of capacity. E.g. 1 mL = 0.001L 	<ul style="list-style-type: none"> Have students complete the table. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th style="background-color: #cccccc;">Container</th> <th style="background-color: #cccccc;">Actual</th> <th style="background-color: #cccccc;">Conversion</th> <th style="background-color: #cccccc;">Explanation</th> </tr> </thead> <tbody> <tr> <td>_____</td> <td>_____mL</td> <td>_____L</td> <td></td> </tr> <tr> <td>_____</td> <td>_____L</td> <td>_____mL</td> <td></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <ul style="list-style-type: none"> Millimetre-Litre Show Down <ol style="list-style-type: none"> Class is divided into two teams. Teacher asks questions where students express millimetres as litres and vice versa. The team with the most correct answers is the winner. 	Container	Actual	Conversion	Explanation	_____	_____mL	_____L		_____	_____L	_____mL										<ul style="list-style-type: none"> Harcourt Math Bk. 4 pg. 477 Conversion Sheets 	<ul style="list-style-type: none"> Journal Entry: Write to explain the following: <ol style="list-style-type: none"> If a syringe contains 0.073L of the H1N1 flu vaccine. How many mL would 10 syringes contain? Students create questions expressing litres as millilitres and vice versa. Students also supply the answers for the questions.
Container	Actual	Conversion	Explanation																					
_____	_____mL	_____L																						
_____	_____L	_____mL																						

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<p>11. Create and solve problems with capacity measures.</p>	<ul style="list-style-type: none"> • Capacity is an attribute of a container that can be introduced to young children by asking, “Which holds more?” <p>Capacity 1 liter (L) = 1,000 milliliters 1 metric cup = 250 milliliters.</p> <p>1 tablespoon (tbsp) = 3 teaspoons (tbsp) 1 cup (c) = 8 fluid ounces (fl. oz) 1 pint (pt) = 2 cups 1 quart (qt) = 2 pints 1 gallon (gal) = 4 quarts</p> <p>Examples How many quarts are in 2 gallons? 2 gal = ____qt</p> <p>gallons quarts in 1 gallon quarts</p> $\begin{array}{ccccccc} \downarrow & & \downarrow & & \downarrow & & \\ 2 & \times & 4 & = & 8 & & \\ \text{So, } & 2 \text{ gallons equals} & & & 4 \text{ quarts} & & \end{array}$	<ul style="list-style-type: none"> • Students view containers and state, which one holds the most and least liquid. Students justify their responses. <div style="text-align: center;">  </div> <ul style="list-style-type: none"> • Students are placed in cooperative groups where they solve problems with capacity measures. Students justify their responses. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 4. pg. 460 • Harcourt Math Bk. 4 pg. 477 • Teaching Children Mathematics pg. 396 	<ul style="list-style-type: none"> • Create a display of various containers with specific problems. Students solve the problems. <p>Example: How many quarts are in 4 gallons?</p> <ul style="list-style-type: none"> • Students create a booklet of questions and answers pertaining to measuring capacity.

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<p>12. Use standard units to estimate and measure mass.</p>	<ul style="list-style-type: none"> Mass is the amount of matter in an object <p style="text-align: center;">Mass / Weight</p> <p>1 grams(g) = 1,000(mg) 1 pound = 160oz 1kg = 1,000 grams 1 ton = 2,000lbs</p> <p>Example How many grams are equivalent to 2 kilograms? Think: there are 1,000 grams in 1 kg $2 \text{ kg} = 2 \times 1,000 = 2,000\text{g}$ So, 2,000g are equivalent to 2 kg</p>	<ul style="list-style-type: none"> Choose the more reasonable measurement for the objects. <div style="text-align: center;">  </div> <p>1g or 1kg 5g or 5kg 200g or 20kg 600g or 600kg</p> <ul style="list-style-type: none"> Use standard units to estimate and measure mass of certain items. Students then compare estimated results with actual results. Group Activity: <ol style="list-style-type: none"> Distribute a paper clip and mathematics textbook to each group. Each group makes a list of as many items as they can with 3 minutes that are about the same mass as the paper clip or the mathematics textbook. A representative from each group reads the group's list aloud and explains their rationale for the 2 groups of items. Paper clip = 1g; book = 1kg. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 <ol style="list-style-type: none"> Reteach, Practice, Challenge 24.4 Problem Solving 24.4 Math Jingle CD 3.4 - Track 15 Intervention Strategies and Activities CD ROM Skills 29, 66 www.harcourtschool.com/elab2002 	<ul style="list-style-type: none"> Worksheet on estimating and measuring mass. Using items in their homes, students create a list of objects that weigh between <ol style="list-style-type: none"> 1 g-70 kg 1 lb-1 ton

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13. Create and solve problems involving mass measurement.	<ul style="list-style-type: none"> • You can use multiplication to change kilograms to grams. • Have discussion on how to change grams to kilograms. 	<ul style="list-style-type: none"> • Students work in pairs to solve problems. <p>Example: Wesley needs to move 840 kg of mangoes from Arawak Cay to Paradise Island in a dinghy. The dinghy can carry no more than 120 kg at a time. What is the fewest number of trips he will have to make?</p>	<ul style="list-style-type: none"> • Harcourt Math Bk. 4 pg. 476 <ol style="list-style-type: none"> a. Reteach, Practice; Challenge 24.4 b. Problem Solving 24.4 c. Transparency 24.4 d. Intervention Strategies 	<ul style="list-style-type: none"> • Students create problems and explain answers.
14 Estimate, compare and measure time needed to complete a task.	<ul style="list-style-type: none"> • There are two attributes of events that can be measured: time of occurrence and length of duration. 	<p>Obstacle Course</p> <ul style="list-style-type: none"> • Students guess the time they will need to complete every task and an average time needed to complete the entire course. Each discipline is timed using a stop watch. <p>Prompts</p> <ol style="list-style-type: none"> a. Write the multiples of 9 up to 108. b. Recite Psalm23 c. Identify Washington D.C, Baghdad, Nassau, Port au Prince on a world map. d. Spell five conjunctions, adjectives, and interjections. <p>Students will explain why times varied.</p>	<ul style="list-style-type: none"> • www.harcourtschool.com/elab2002 • Harcourt Math Bk 4. pg 120 • Helping Children Learn Mathematics pg. 118 	<ul style="list-style-type: none"> • Create an obstacle course that can be completed within a specified time.

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15. Estimate the relationship among seconds, minutes, hours, days, weeks, months, years, decade and centuries	<p>Time</p> <p>1 minute = 60 sec. 1 year = 12 months or about 52 weeks 1 year = 365 days 1 day = 24 hours 1 leap year = 366 days 1 week (wk) = 7 days 1 decade = 10 years 1 century = 100 years</p> <ul style="list-style-type: none"> You can begin describing the time of occurrence by giving a time span. For example, it happened today, in the morning, in October. Students can tell which of two events take longer if their lengths, are greatly different. If the events are similar in duration, children can tell which lasts longer if both events begin at the same time. 	<ul style="list-style-type: none"> How long does it take you? <ol style="list-style-type: none"> Students work in groups to complete chart based on the topic. Discuss why answers may differ. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Seconds</th> <th>Minutes</th> <th>Hours</th> <th>Days</th> <th>Weeks</th> <th>Months</th> <th>Year s</th> <th>Decades</th> </tr> </thead> <tbody> <tr> <td>Grow Old</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>→</td> </tr> <tr> <td>Graduate</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>→</td> <td></td> <td></td> </tr> <tr> <td>Clean House</td> <td></td> <td></td> <td>→</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Eat Lunch</td> <td></td> <td>→</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Bake a Cake</td> <td></td> <td></td> <td>→</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Smile</td> <td>→</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Brush Your Teeth</td> <td>→</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Seconds	Minutes	Hours	Days	Weeks	Months	Year s	Decades	Grow Old								→	Graduate						→			Clean House			→						Eat Lunch		→							Bake a Cake			→						Smile	→								Brush Your Teeth	→								<ul style="list-style-type: none"> Helping Children Learn Mathematics pg.398 schedules 	<ul style="list-style-type: none"> Plot a bar graph using intervals of 1 minute. Use at least five persons to demonstrate these activities. <ol style="list-style-type: none"> Heading up books Eating lunch Dressing for school Singing the national anthem
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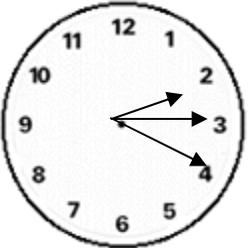
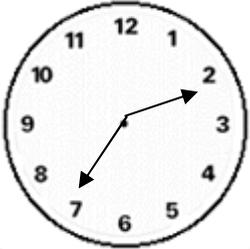
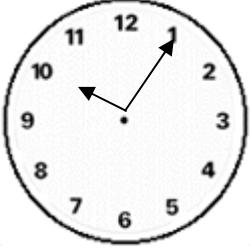
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PRIMARY SCHOOL MATHEMATICS
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OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
16. Record the data in SI format	<ul style="list-style-type: none"> • SI means Systems International, which advocates placing the units in order, largest first. For example year, month, day. Write July 10th, 1973 in Systems International form. 1973/ 07/10 	<ul style="list-style-type: none"> • Write birthdays of family members in Systems International form. • Compare the American and British format of writing dates. 	<ul style="list-style-type: none"> • http://physics.nist.gov/cuu/units/units.html 	<ul style="list-style-type: none"> • Conduct a debate to tell which format is better (British or American).
17. Read and write times to the nearest minute on twelve and twenty-four hour on clocks	<ul style="list-style-type: none"> • You can read the scale on a clock (hour, minute, and second). • A military service uses the 24 hour clock. A day starts at midnight shown as 00:00. The day ends the next midnight shown as 24:00 hours. • The first 2 digits show the hour and the last two digits show the minutes. E.g. 03:45 = 3:45 a.m. 	<ul style="list-style-type: none"> • Set clocks using 12 hour and 24-hour clocks. Students write the time on both clocks and compare them. • Write specific times in digital notation (4:20) 	<ul style="list-style-type: none"> • Teaching Children Learn Mathematics pg. 403 • Harcourt Math Bk. 4 pgs. 116-118 • Harcourt Math Newsroom Video Leap Day 	<ul style="list-style-type: none"> • Compare and contrast the 12 hour and 24 hour clock. • Explain which of the clocks is more ideal to use.

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	<ul style="list-style-type: none"> • Read and write this time as: 2 hours 24 minutes and 16 seconds. - 24 minutes 16 seconds after two - 44 seconds before 2:25 	<ul style="list-style-type: none"> • Write the time shown on the clock in 2 different ways.   <ul style="list-style-type: none"> • Write the times as a.m. or p.m. a. 14:40 b. 02:15 		<ul style="list-style-type: none"> • Complete problems within a set time. • Using a clock, groups of students complete problems within in a set period. They submit solutions at a specified time. <p>NB Students must be mindful of the times.</p>

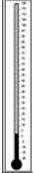
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18. Convert hours to minutes and vice versa.	<ul style="list-style-type: none"> • 60 sec. = 1 min. 60 mins. = 1 hour • To convert from a smaller unit to a larger unit divide. E.g. 120 sec. = ___mins. 120 sec ÷ 60 = 2 mins. • To convert from a larger unit to a smaller unit, multiply. E.g. 3 hours = ___ mins. 3 x 180 = mins. 	<ul style="list-style-type: none"> • Play Time Concentration. Match the equivalent time. 		

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Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT								
19. Solve problems involving elapsed time.	<ul style="list-style-type: none"> Elapsed time is the time passed from the start to the end of an activity. <p>Example 1 A karate presentation began at 2:30 pm. If it lasted 35 minutes, at what time did it end? Use addition</p> <table style="margin-left: 20px;"> <tr> <td style="padding-right: 20px;">Hrs.</td> <td>Mins.</td> </tr> <tr> <td style="padding-right: 20px;">2</td> <td>30</td> </tr> <tr> <td style="padding-right: 20px;">+</td> <td>35</td> </tr> <tr> <td style="padding-right: 20px;">3</td> <td>05</td> </tr> </table> <p>Think: 60 minute =1 hr So 65 mins. is 1hr. 05 mins. 3 hours 05 minutes Presentation ended at 3:05 p.m.</p> <ul style="list-style-type: none"> Other Ways <ol style="list-style-type: none"> Count forward on a clock End time – Elapsed time = Start time 	Hrs.	Mins.	2	30	+	35	3	05	<p>How Time Flies!</p> <p>Use a clock to solve time problems.</p> <p>12:25 now _____ : _____ 2 hr. 20 min later</p> <p>8:50 now _____ : _____ 5 hr later</p> <p>12:05 now _____ : _____ 20 min before</p>	<ul style="list-style-type: none"> Helping Children Learning Mathematics pg. 404 Harcourt Math newsroom video. Leap Day Calendar clocks. 	<ul style="list-style-type: none"> Use a number line to find elapsed time.
Hrs.	Mins.											
2	30											
+	35											
3	05											
20. Read the thermometer for Celsius and Fahrenheit and convert from degrees Celsius to Fahrenheit and vice versa (Continued).	<ul style="list-style-type: none"> Degrees Fahrenheit are customary units for measuring temperature. Some temperatures are less than 0°F. These are negative temperatures. The lowest temperature marked on the thermometer at the right is -10 °F <p>Example Look at the table. How much would the temperature change if it dropped from the normal high to the normal low Normal high: 16 °F Normal Low -2°F</p>	<ul style="list-style-type: none"> Fahrenheit Make-up Match the temperature on the thermometer with the event by drawing a line to connect them. E.g. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">   </div> <div style="text-align: center;">   </div> </div>	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pgs. 554-557 -Intervention Cards -Enrichment Book Intervention Strategies and Activities CD-ROM Skills 5-6, 59 -Retouch, Practice Challenge and Problems Solving 29.1 and 29.2 Mathematics in Motion: A Resource Book for Primary Teachers, pg. 114 	<ul style="list-style-type: none"> Record the temperature of two islands for a week. Display the information on a line graph on a table. 								

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 5**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>20. Read the thermometer for Celsius and Fahrenheit and convert from degrees Celsius to Fahrenheit and vice versa.</p>	<p>Step 1 First find change in temperature from 16°f to 0°F. The change in temperature is 16°</p> <p>Step 2 Find the change in temperature from 0°F to - 2°F The change in temperature is 2°</p> <p>Step 3 Add the two changes $16^{\circ} + 2^{\circ} = 18^{\circ}$</p>	<p>Celsius Practice For numbers 1 – 4, use a thermometer to find the change in temperature.</p> <p>1) 67° C and 50° C 2) 48°C and -10°C 3) -1 °C and 50°C 4) - 15°C and 22°C</p>		<ul style="list-style-type: none"> • Complete Quiz <p>E.g. ____hrs = 120 min. 3 1/4 hrs. = ____ min.</p>

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5**

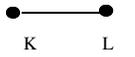
Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space

Essential Questions

1. What is the difference between a point, ray, line, line segment?
2. How are angles measured and classified?
3. How can plane and solid shapes be described?
4. How can you use open and closed curves in every day life?
5. How will a shape look when rotated, reflected, and/or translated?
6. How can you visualize the differences between two and three-dimensional figures?
7. What is symmetry and congruency? How can you verify symmetry and congruency?
8. How can measurements be used to solve problems?

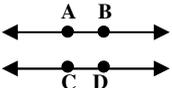
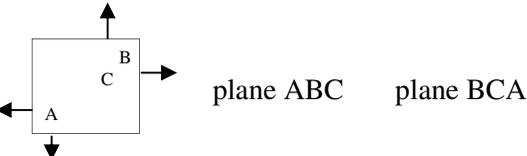
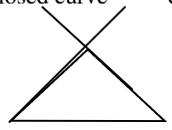
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Draw and describe points, lines, line segments, rays, parallel and perpendicular lines, and planes (Continued).</p>	<ul style="list-style-type: none"> • A point names a location on an object in space. Draw it Read it Write it • A point A point A • A line is a straight path of points that goes on and on in both directions. It has no endpoints. Draw it, Read it, Write it.  Line KL  • A line segment is part of a line. It has two end points. Draw it, Read it, Write it.  Line Segment  K L KL KL • A ray is part of a line. It has one endpoint and goes on and on in one direction. Draw it, Read it, Write it.  Ray KL  	<ul style="list-style-type: none"> • Use spaghetti to make lines, line segments, rays, and planes. • Use locations on maps to illustrate points, line segments, and planes. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 4 pg. 321 a. Problem Solving (Link-Up to Art),Harcourt Math pg. 323 • Mathematics for Elementary Teachers pg. 422 • Mathematics in Motion: A Resource Book for Teachers, pg. 77 • Cards • Rulers • Maps of The Bahamas • Spaghetti • glue 	<ul style="list-style-type: none"> • Have students draw and describe points, types of lines and planes.

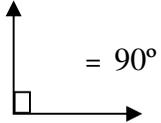
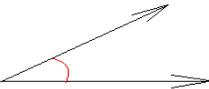
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Draw, describe and illustrate points, lines, line segments parallel and perpendicular lines and planes.</p>	<ul style="list-style-type: none"> • Parallel lines are lines that never intersect.  • Perpendicular lines are lines that intersect to form right angles.  • A plane is a flat surface of points with no end. A plane is named by at least three points in the plane  			
<p>2. Distinguish between open and closed curves (Continued).</p>	<ul style="list-style-type: none"> • A simple closed curve does not cross itself and encloses a part of the plane.  simple curve • An open curve is a curve with endpoints. Simply, the ends do not join. 	<ul style="list-style-type: none"> • Use thread to complete the following examples. curves: closed curve and not a simple curve.  •  not a closed curve •  not a closed curve 	<ul style="list-style-type: none"> • Mathematics for Elementary Teachers, pg. 420 • Harcourt Math Bk.5, pg. 486 • thread • glue • paper 	<ul style="list-style-type: none"> • Identify and write letters that are examples of open and closed curves.

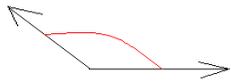
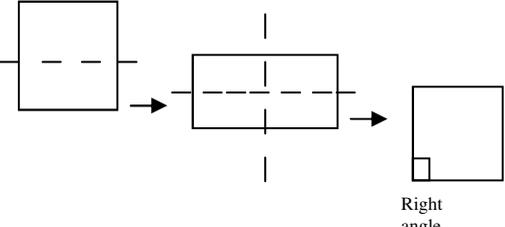
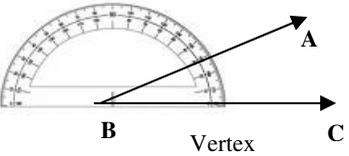
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Distinguish between open and closed curves.				
3. Compare and estimate the various sizes of different angles by greater than, less than or equal to 90° .	<ul style="list-style-type: none"> Two rays with the same end-point form an angle. The rotation of the arms (ray) gives the measure of the angle. The angle is at the vertex. The end-point is called the vertex. Right Angle forms a square corner. The angle is exactly 90°  <ul style="list-style-type: none"> An acute angle is an angle that measures less than a right angle (90°). 	<ul style="list-style-type: none"> Have students view a parade of officers during Independence celebration. Point out right turns that show exactly 90°. Inform students that acute means sharp. Have students identify common objects that have sharp points that are examples of acute angles. Allow students to set clock arms to: <ul style="list-style-type: none"> a. show specific times b. name the angles formed c. estimate the size of the angles d. tell if the angles are greater than, less than or equal to 90° Make an angle using a sheet of paper. Fold the paper twice to make an angle like this. The angle you have made is called a right angle 	<ul style="list-style-type: none"> Harcourt Math Bk. 4, pgs. 321, 340 <ul style="list-style-type: none"> a. Practices and Problem Solving pg. 322. Mathematics for Elementary Teachers, pgs. 413-414 Helping Children Learn Math pg. 381 clock watch 	<ul style="list-style-type: none"> Quiz: Have students use clocks set at specific times to create questions on angles.

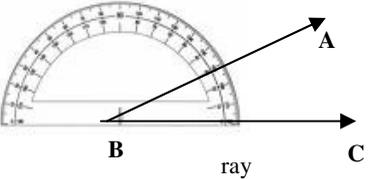
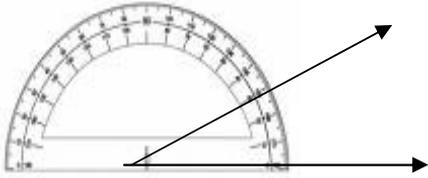
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>3. Compare and estimate the various sizes of different angles by greater than, less than or equal to (Continued).</p>	<ul style="list-style-type: none"> An obtuse angle is an angle that measures greater than a right angle (90°) but less than 180° 	<ul style="list-style-type: none"> Make an angle using a sheet of paper. Fold the paper twice to make an angle like this. The angle you have made is called a right angle 		
<p>4. Measure angles to 180° using a protractor (Continued).</p>	<ul style="list-style-type: none"> A protractor can be used to measure the size of the opening of an angle. The scale on a protractor is marked from 0° to 180°. Example: Use a protractor to measure angle ABC. <p>Step 1 Place the center of the protractor on the vertex of the angle</p> <p style="text-align: center;">Extend the ray</p> 	<ul style="list-style-type: none"> Students trace figures and use a protractor to measure angles. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4, pgs. 340 & 341 Mathematics for Elementary Teacher, pg. 412 Mathematics in Motion: A Resource Book for Primary Teachers, pg. 94 protractor ruler 	<ul style="list-style-type: none"> Use a map of Down Town Nassau and Paradise Island. Allow students to highlight two of their favourite locations from a specific point. Students measure the distance between their highlighted points using a protractor.

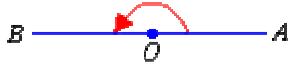
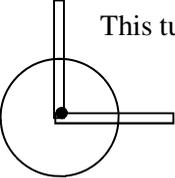
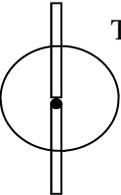
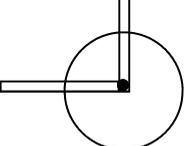
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>4. Measure angles to 180° using a protractor.</p>	<p>Step 2 Line up the center point and the 0° mark on the protractor with one ray of the angle.</p>  <p>Step 3 Read the angle measure the ray passes through on the scale.</p> <p>Write angle measure in degrees ($^\circ$)</p>  <p>The measure of $\angle ABC = 50^\circ$</p>			
<p>5. Demonstrate knowledge of the sum of angles in a circle and on a straight line (Continued).</p>	<ul style="list-style-type: none"> • A circle is a closed figure made up of points that are the same distance from the center. • The unit used to measure an angle is a degree ($^\circ$) A complete turn around the circle is 360°. 	<ul style="list-style-type: none"> • Use turns of geo-strips to show different angles 	<ul style="list-style-type: none"> • Harcourt Math Bk. 4, pg. 342 • Paper • Stick 	<ul style="list-style-type: none"> • Using a protractor, have students calculate the number of degrees when moving from one point to another.

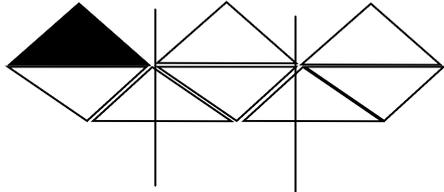
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>5. Demonstrate knowledge of the sum of angles in a circle and on a straight line.</p>	<ul style="list-style-type: none"> The angle of a straight line is 180° and it is half turn around the circle. 	<p>Step 1 Open the geo-strips to form a 90° angle.</p>  <p>This turn is a $\frac{1}{4}$ turn around a circle</p> <p>Step 2 Now open the geo-strip $\frac{1}{4}$ turn more to make a 180° angle.</p>  <p>This is a $\frac{1}{2}$ turn around the circle</p> <ul style="list-style-type: none"> Open your geo-strip another $\frac{1}{4}$ turn to make a 270° angle.  <p>This is a $\frac{3}{4}$ turn around a circle</p>	<ul style="list-style-type: none"> elastic bands tacks compass 	<p>Example: A child starts at compass point east and moves clockwise to the south point. How many degrees has the child moved?</p>

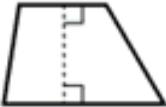
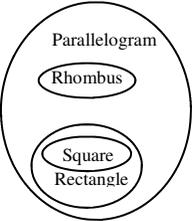
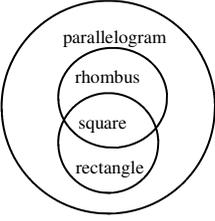
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>6. Identify and classify polygons up to 10 sides including special quadrilaterals such rectangles, parallelogram, square, rhombus, kite, dart, trapezium (Continued).</p>	<ul style="list-style-type: none"> A polygon is a closed plane figure with straight sides. Polygons are named by the number of sides or number of angles they have. <p>E.g. triangle, quadrilateral, pentagon, octagon</p> <p>Triangle = 3 sides 3 angles</p> <p>Quadrilateral = 4 sides 4 angles</p> <p>Pentagon = 5 sides 5 angles</p> <ul style="list-style-type: none"> A parallelogram is a quadrilateral whose opposite sides are parallel and congruent. <p>Hexagon = 6 side and 6 angles Heptagon = 7 sides and 7 angles Octagon = 8 sides and 8 angles Nonagon = 9 sides and 9 angles Decagon = 10 sides and 10 angles</p>	<ul style="list-style-type: none"> Can You Find? See if you can find each of these in the design. Fill in the shape, and mark it with the matching letter. <p>A triangle - isosceles B triangle - scalene C quadrilateral - not symmetric D quadrilateral - 4 line symmetry E pentagon - concave F pentagon - convex G hexagon - symmetric H hexagon - symmetric I heptagon(7 sides) - symmetric J heptagon - not symmetric K octagon</p> 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pg. 486 Helping Children Learn Mathematics pg. 383 Mathematics for Elementary Teachers p. 420 crayons Markers cards 	<ul style="list-style-type: none"> Have students create a game to name and describe polygons.

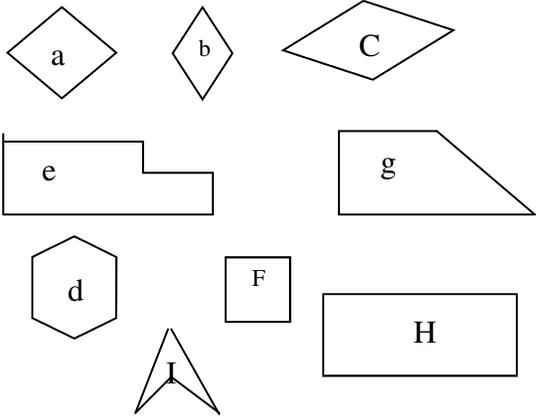
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5**

Sub-Goal 5: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>6. Identify and classify polygons up to 10 sides including special quadrilaterals such rectangles, parallelogram, square, rhombus, kite, dart, trapezium. (Continued)</p>	<ul style="list-style-type: none"> • Rhombus-a parallelogram with 4 congruent sides.  <ul style="list-style-type: none"> • Trapezium and trapezoid are the same. The term trapezium is used in England and trapezoid in America. • Trapezium is a quadrilateral with 2 and only two sides that are parallel.  <ul style="list-style-type: none"> • A trapezoid is a quadrilateral in with one pair of opposite (non-intersecting) sides that is parallel. • A quadrilateral has 4 sides and 4 angles. • A rectangle is a quadrilateral that has four right angles. • A rhombus is a quadrilateral that has four congruent sides. 	<ul style="list-style-type: none"> • Identify various polygons in the environment and explain why it has that shape. <ul style="list-style-type: none"> a. home b. school • To find all the attributes of a trapezoid, which of the following Venn diagram is correct? <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;">trapezoid</div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;">trapezoid</div> <div style="text-align: center;">  </div> </div> <p>Correct One</p>	<ul style="list-style-type: none"> • Mathematics for Elementary Teachers 429 • Harcourt Math Book 4 pg. 348 • Helping Children Learn Math pg. 383 	<ul style="list-style-type: none"> • Given the properties, students must name the quadrilaterals that have the said properties.

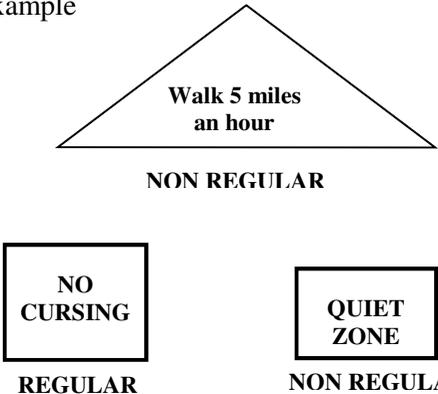
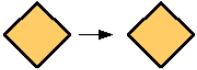
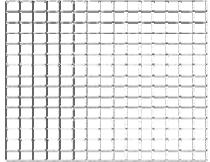
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5**

Sub-Goal 5: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>6. Identify and classify polygons up to 10 sides including special quadrilaterals such rectangles, parallelogram, square, rhombus, kite, dart, trapezium.</p>	<ul style="list-style-type: none"> A square is a quadrilateral that has four congruent sides and four right angles. 	<p>Classify Me Classify and name quadrilaterals. Mark each of the figures using the numbers below:</p> <ul style="list-style-type: none"> If it is a quadrilateral use 1 If it has two pairs of parallel sides use 2 If it has all right angles use 3 If it has all congruent sides use 4  <p>a. Any figure marked 1 and 2 is a _____ b. Any figure marked 1, 2, and 3 is a rectangle as well as a _____ c. Any figure marked 1, 2, and 4 is a _____ as well as a _____. d. Any figure marked 1, 2, 3, and 4 is a _____ and a _____ as well as a square.</p>		

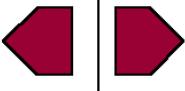
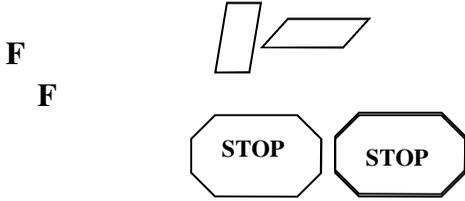
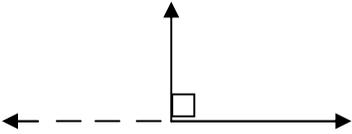
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5**

Sub-Goal 5: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
7. Distinguish between regular and non-regular polygons	<ul style="list-style-type: none"> Regular polygons have all sides and angles equal. e.g Triangle (equilateral) quadrilateral (square), regular hexagon. Non-regular polygons have sides that have different lengths. e.g. Triangle (isosceles, scalene) quadrilateral (kite), rectangle, pentagon 	<ul style="list-style-type: none"> Construct school signs using regular and non-regular polygons. They will be placed in strategic areas of the school. <p>Example</p> 	<ul style="list-style-type: none"> Mathematics for Elementary Teachers pg. 420 Cereal boxes Crayons markers Ruler pencils 	<ul style="list-style-type: none"> Have students create a booklet of regular or non-regular polygons.
8. Demonstrate various motions as a translation, reflection and rotation (Continued).	<ul style="list-style-type: none"> Transformations are different ways to move a figure. Three kinds of transformations are translation, reflection, and rotation. A translation is the movement of a figure on a straight line. 	<ul style="list-style-type: none"> Transformation Step 1: Copy each pair of figures on dotted paper  <ul style="list-style-type: none"> Step 2: Cut out one in each pair, and move it in any way to check for congruency. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4. pg.326 Mathematics for Elementary Teachers pg.504 Centimeter dot paper ruler scissors mira 	<ul style="list-style-type: none"> Write a journal entry explaining the movements involved during the three forms of translations and give examples of when these movements are done in school.

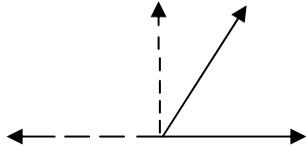
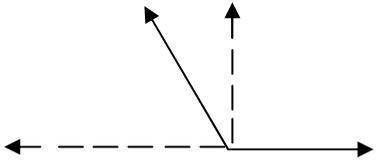
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5

Sub-Goal 5: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>8. Demonstrate various motions as a reflection, translation, and rotation.</p>	<ul style="list-style-type: none"> A reflection is a movement of a figure to a new position by flipping it over a line.  <ul style="list-style-type: none"> A rotation is the movement of a figure by turning it around a point.  <ul style="list-style-type: none"> Two plane drawings are congruent if one can be moved onto the other using a rotation, a translation, a reflection or some combination of these motions 	<p>Step 3: Trace one of each pair of geometric figures, and use a rotation, translation, or reflections to determine if the two shapes are congruent. If the shapes are congruent state which motion you used to show this.</p> 		
<p>9. Identify acute, obtuse, and right angles and measure angles to 180° (Continued).</p>	<ul style="list-style-type: none"> A right angle forms a square corner and it measures exactly 90° 	<ul style="list-style-type: none"> Create kites from scrap paper and identify the angles on the kites they constructed (the sticks crossing each other form right angles.) <p>Example: When hoisting your kite, you arm pits can show acute, right and obtuse angles depending on where the kite is in the air or on the ground</p> 	<ul style="list-style-type: none"> Mathematics for Elementary Teachers pg. 413 Harcourt Math Bk. 4 pg. 321 Kites 	<ul style="list-style-type: none"> Quiz: Identify and measure acute, obtuse, and right angles.

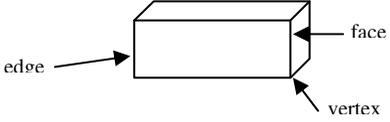
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5**

Sub-Goal 5: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>9. Identify acute, obtuse, and right angles and measure angles to 180 degrees.</p>	<ul style="list-style-type: none"> <p>An acute angle is an angle that measure less than a right angle (90°).</p>  <p>An obtuse angle is an angle that measures greater than a right angle (greater than 90° less than 180°)</p>  			

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5**

Sub-Goal 5: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes, and space.

OBJECTIVES	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT																																
<p>10. Investigate, classify, and name solid shapes (Continued).</p>	<ul style="list-style-type: none"> • Polygons have only length and width, so they are two dimensional figures. Solid figures have length width and height so they are three dimensional figures. • A solid is a union of a simple closed surface and it's interior. • Cone: pointed figure that has a flat round base • Cube has 6 congruent square faces. • Pyramid has a polygon base and triangular sides that meet at a single point. • Prism: has two congruent polygonal regions that are connected by parallel line segments 	<ul style="list-style-type: none"> • Find the number of faces, edges, and vertices of the solid figures in the table below <div style="text-align: center;">  </div> <table border="1"> <thead> <tr> <th>Name</th> <th># of faces</th> <th># of edges</th> <th># of vertices</th> </tr> </thead> <tbody> <tr> <td>Cube</td> <td>6</td> <td>12</td> <td>8</td> </tr> <tr> <td>Rectangle</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Prism</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Triangle</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pyramid</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Square</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pyramid</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Solid Mystery Solve each of these mysteries by constructing a 'suspect'. If you think there is more than one suspect look at clue 2. 	Name	# of faces	# of edges	# of vertices	Cube	6	12	8	Rectangle				Prism				Triangle				Pyramid				Square				Pyramid				<ul style="list-style-type: none"> • Mathematics for Elementary Teachers pg. 453 • Harcourt Math Bk. 4 pg. 508 • Helping Children Learn Mathematics pg.367 • Mathematics in Motion: A Resource Book for Primary Teachers, pgs. 85, 87 	<ul style="list-style-type: none"> • Students classify and name solid shapes.
Name	# of faces	# of edges	# of vertices																																	
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**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 5**

Sub-Goal 5: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes, and space.

OBJECTIVES	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>10. Investigate, classify, and name solid shapes.</p>		<p>The diagram illustrates a network of clues for identifying shapes. It features the following elements:</p> <ul style="list-style-type: none"> Top Left Triangle: Labeled "Clue 1", with text "Each edge is perpendicular to four other edges". A dashed arrow points down to the middle triangle. Middle Left Triangle: Labeled "Clue 2", with text "edges are not at the same length". A dashed arrow points up to the top triangle. Top Middle Circle: Labeled "Clue 2", with text "There are 6 edges". A dashed arrow points down to the bottom circle. Middle Middle Circle: Labeled "Clue 1", with text "No edge perpendicular". A dashed arrow points up to the top circle. Top Right Hexagon: Labeled "Clue 1", with text "The side edges are perpendicular to the bottom edges". A dashed arrow points down to the bottom hexagon. Middle Right Hexagon: Labeled "Clue 2", with text "There are 3 side edges". A dashed arrow points up to the top hexagon. Bottom Left Box: Labeled "Clue 1", with text "No side edges are perpendicular to the bottom edges". A dashed arrow points right to the bottom right box. Bottom Right Box: Labeled "Clue 2", with text "Each bottom is perpendicular to two". 		

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 5

Sub-Goal 6: Collect, organize, and analyze data using statistical methods: predict results; and interpret uncertainty, using concepts of probability.

Essential Questions

1. What is the difference between the median and the range?
2. How can you find the mode of a set of data?
3. What is the benefit of charts, diagrams, tables, and graphs in our daily lives?
4. How is probability used to predict outcomes in problem-solving?
5. How can experimental and theoretical probabilities be used to make predictions and draw conclusions?

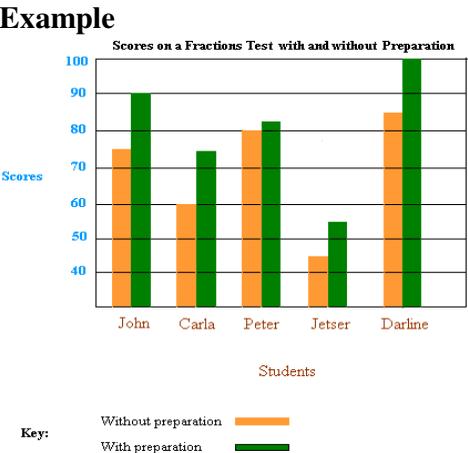
SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 5

Sub-Goal 6: Collect, organize, and analyze data using statistical methods: predict results; and interpret uncertainty, using concepts of probability.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Find mean, median, mode, and range of a set of data.	<ul style="list-style-type: none"> • The mean or average is the number found by dividing the sum of a set of numbers by the number of addends. • The mode is the number that occurs most often. There may be more than one mode, or there may be no mode. • The median is the middle number. Remember to arrange the numbers in order from least to greatest. • The range is the difference between the greatest and the least values in a set of data. 	<ul style="list-style-type: none"> • In groups, students use different graphs where they find the mean, median, mode, and range of a set of data. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 4 pgs.276, 86- 88 	<ul style="list-style-type: none"> • Students create problems and solve them. These problems deal with the mean, median, mode, and range of a set of data.
2. Determine the most appropriate graph for a given set of data	<ul style="list-style-type: none"> • Graphs are used to display data. • Bar graphs display countable data with horizontal and vertical bars. • Line graphs are used to show change, or increases and decreases over a period. 	<ul style="list-style-type: none"> • Create varied types of graphs using local data. • Locate graphs in newspapers etc. <ol style="list-style-type: none"> a. Discuss data. b. Peruse and discuss graphs that are inappropriate for given data. • Create a concentration type game. Match the data with the name of the most appropriate type of graph. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 4 pgs.106-109 	<ul style="list-style-type: none"> • Provide students with specific sets of data. Let them tell the most appropriate graphs to use for each set. • Examine students' completed games and answer keys.

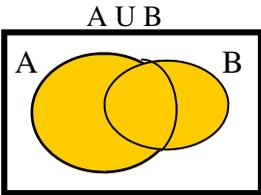
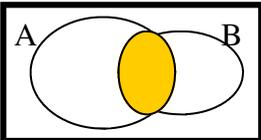
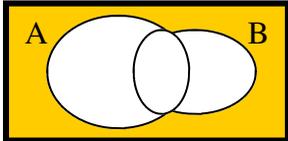
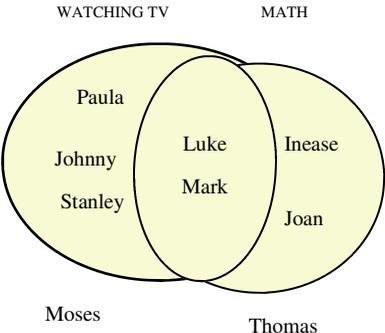
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 5**

Sub-Goal 6: Collect, organize, and analyze data using statistical methods: predict results; and interpret uncertainty, using concepts of probability.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Analyze data to make decisions to solve problems	<ul style="list-style-type: none"> Analyzing data is to study and understand the information. This information can be used to solve problems or make sound decisions. 	<ul style="list-style-type: none"> Propose the following problem to students. The Principal wants to create a weekly menu of healthy foods to be sold to students. Help this principal create a menu with cost per item. Have students: <ol style="list-style-type: none"> Collect data from other students: favorite foods and the ideal costs Create menu 	<ul style="list-style-type: none"> Harcourt Math Bk. 4 pgs.110 & 111 	<ul style="list-style-type: none"> Present students with data and questions that require decisions to be made. Have students provide solutions.
4. Read and interpret double bar graphs.	<ul style="list-style-type: none"> A double bar graph is a graph that shows two different sets of data. <p>Example</p>  <p>Key: Without preparation — Orange bar With preparation — Green bar</p>	<ul style="list-style-type: none"> Create graphs using local information Example: How many girls and how many boys like: <ol style="list-style-type: none"> Pepperoni pizza Sausage pizza Vegetable pizza Allow students to: <ol style="list-style-type: none"> Develop questions Create answers keys 	<ul style="list-style-type: none"> http://www.basicmathematics.com Harcourt Math Bk. 4 pg. 100 	<ul style="list-style-type: none"> Complete Practice and Problem Solving in Harcourt Math Bk. 4 pg. 101.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 5**

Sub-Goal 6: Collect, organize, and analyze data using statistical methods: predict results; and interpret uncertainty, using concepts of probability.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>5. Read and interpret Venn diagrams.</p>	<ul style="list-style-type: none"> A Venn diagram is a picture of sets. Sometimes sets have elements that overlap. Symbols: \in is an element/member of \cap = Intersect \cup = Union <p>Within each set including the overlap (Union)</p>  <p>Where the sets overlap or intersects</p>  <p>Outside the sets</p> 	<ul style="list-style-type: none"> In groups, students answer questions using the Venn diagram below. <p>Hobbies of a Group of Friends</p>  <ol style="list-style-type: none"> How many students enjoy watching television? How many children enjoy both mathematics and watching television? Which of the friends enjoy neither of these things? 	<ul style="list-style-type: none"> Bright Sparks Bk. 4 pgs. 152 & 153 	<ul style="list-style-type: none"> Complete an activity sheet where students answer questions using a Venn diagram.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 5

Sub-Goal 6: Collect, organize, and analyze data using statistical methods: predict results; and interpret uncertainty, using concepts of probability.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
6. Identify the probability of an event and verify by doing trials in an experiment.	<ul style="list-style-type: none"> Probability is the chance that an event will happen. $P = \frac{\text{Number of Favourable Outcomes}}{\text{Number of Possible Outcomes}}$ <ul style="list-style-type: none"> The probability of an event is a number from 0 to 1 The probability of an event that is certain to occur is 1. The probability of an event NOT occurring is 0. expressed as 0, 1, or a fraction between 0 and 1 	<ul style="list-style-type: none"> Create Spinners <ol style="list-style-type: none"> Coloured Names of pets Things of interest to students Conduct experiments where students find the probability of events. <p>Examples of items that can be used</p> <ol style="list-style-type: none"> A bag of marbles Tossing of coins 	<ul style="list-style-type: none"> Harcourt Math Bk.5 pg.578 	<ul style="list-style-type: none"> Conduct experiments and record outcomes.
7. Write probability as a fraction or ratio.	<ul style="list-style-type: none"> Probability can be expressed as a ratio or a fraction. Probability as ratios: <ol style="list-style-type: none"> 1 to 3 1:3 Probability as ratio in fraction form. <ol style="list-style-type: none"> 1/3 	<ul style="list-style-type: none"> Create board games that allow students to write probabilities as fractions or ratios. 	<ul style="list-style-type: none"> Harcourt Math Bk. 4. pg. 381 Harcourt Math Bk.4 pg.542 	<ul style="list-style-type: none"> Complete Problem Solving: Thinker's Corner. Harcourt Math Bk. 4. pg. 381 <p>Example: Write a ratio to compare the number of jumpers to the number of jump ropes. Write each ratio in three ways.</p>
8. Identify situations involving chance.	<ul style="list-style-type: none"> Situations involving chance are those in which any outcome is possible. i.e. a desired outcome or <p>Example: Winning a raffle.</p>	<ul style="list-style-type: none"> Allow students to create lists of situations involving chances Let students create unique games. 		<ul style="list-style-type: none"> Students will outline names of situations that occur based on chance. <p>Example: Why the games are classified as Games of Chance?</p>

Scope of Work

Primary School Mathematics

Grade 6

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 6

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

Essential Questions

1. Why is it important to know how to read and write numbers through billions?
2. How does a square number differ from the square root of a number? Explain the steps to calculate the square and square root of numbers.
3. What are the different ways a number can be written?
4. How can I compare and order rational numbers?
5. How is comparing numbers essential in everyday life?
6. How is exponential notation useful?
7. What is the difference between LCM and HCF?
8. How is an understanding of positive rational numbers, their representations, and relationships useful in problem solving?

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 6

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Read and write numbers through billions (12 digits).	<ul style="list-style-type: none"> Numbers are part of the decimal system. This system uses ten digits: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 single or collectively. These digits form whole numbers or decimal numbers. These numbers can be written in standard form, expanded form, or word form. Example: Standard Form: 28 964 371 045 Expanded Form: 20 000 000 000 + 8 000 000 000 + 900 000 000 + 60 000 000 + 4 000 000 + 300 000 + 70 000 + 1 000 + 000 + 40 + 5 Word Form: twenty -eight billion, nine hundred sixty-four million, three hundred seventy- one thousand, forty-five. 	<ul style="list-style-type: none"> School Campaign <ol style="list-style-type: none"> Hold a school wide campaign “How Big is a Million?” Collect one million of some small items (e.g. one-cent coins or bottle caps). Allow all students to contribute, count and decide where to display one million of selected items. Students investigate the question: What size room would be needed to hold one million basketballs? Have students create game cards with standard forms of numbers on one side and word form on the other side. 	<ul style="list-style-type: none"> Harcourt Math Bk.5 pgs. 4-7 Math Advantage Bk. 6 pg. 6 	<ul style="list-style-type: none"> Quiz: Students write numbers through billions. Example: <ol style="list-style-type: none"> Write 4 237 824 923 in expanded notation. Name the value of 5 in the number 5 678 432 Students compete to read and write numbers through billions.
2. Compare numbers through billions using the symbols <, >, and = (Continued).	<ul style="list-style-type: none"> Comparing numbers means to show how they are alike, or is equal to (=), which is less than <, or greater than >. 	<ul style="list-style-type: none"> Create place value mittens where numbers and symbols will be placed in the correct positions. 	<ul style="list-style-type: none"> Harcourt Math Bk.5 pgs. 8 & 9 	<ul style="list-style-type: none"> Use number lines to compare numbers. Complete worksheet comparing numbers up to billions.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 6**

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Compare numbers through billions using the symbols <, >, and =		<ul style="list-style-type: none"> Give students flash cards with numbers and symbols. Students create number paths comparing numbers with symbols. Example: $63 = 59 + 4 > 30$ $3\ 674\ 123\ 900 < 54\ 985\ 653\ 349$ 		
3. Explain orally and in writing the differences between: even and odd numbers, factors and multiples, and square and square root and prime and composite.	<ul style="list-style-type: none"> An even number is an integer that can be divided exactly into two. An odd number of objects cannot be put into groups of two without an object left over. A multiple is the product of a given whole number and another whole number. A square is the product of a number and it can be expressed with the exponent 2. The square root is one of the two equal factors of a number. A number multiplied by itself equals the original number. A prime number has only 2 factors: itself and 1. Example: $11 = 11 \times 1 = (1, 11)$ Composite numbers have more than 2 factors. Example: $9 = 3 \times 3$; $1 \times 9 = (1, 3, 9)$ 	<ul style="list-style-type: none"> Use circle games (Venn- diagrams) to categorize types of numbers <ol style="list-style-type: none"> odd number even numbers multiples of given numbers Students also find numbers that are common to sets. 	<ul style="list-style-type: none"> Harcourt Math Bk. 5 pgs. 258 & 259 Math Advantage Bk. 6 pg. 43 	<ul style="list-style-type: none"> Teacher presents a list of problems. Students orally respond and explain their answers. Students also indicate if the answer is even, odd, factor, multiples, square, and square roots. Students create riddles with answers using even, odd, factor, multiples, square, and square roots.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 6

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
4. Identify and represent integers on the number line.	<ul style="list-style-type: none"> • Integers are the set of whole numbers, their opposites and 0. Each integer, except 0, has an opposite that is the same distance from 0 but on the opposite side of 0. • Integers are classified as either positive or negative. Example: -3, -2, -1, 0, +1, +2, +3, • Positive integers can be written with or without a positive (+) sign: +6 or 6. • Negative integers are written with a negative (-) sign: -6 	<ul style="list-style-type: none"> • Complete number lines with integers and their opposites. • Create thermometers where students show the positive and negatives of given temperatures. 	<ul style="list-style-type: none"> • Harcourt Math pg.384-389 • Math Advantage Bk. 6 pg.466 	<ul style="list-style-type: none"> • Activity: Order integers on a number line from least to greatest. Example: +1, -2, 0, -3 Answer -3, -2, 0, 1, • Complete number line and thermometers with integers.
5. Write numbers as products of prime numbers using exponential notation where appropriate (Continued).	<ul style="list-style-type: none"> • Numbers can be expressed as products of prime numbers using exponential notation/index form. • A prime number is a whole number that is greater than 1 whose only factors are 1 and itself. • Exponential notation or index form is a number that has a base and an exponent. The exponent shows how many times the number base is used as a factor. Example: $8 = 2 \times 2 \times 2 = 2^3$ $56 = 2 \times 2 \times 2 \times 2 = 2^3 \times 7$ 	<ul style="list-style-type: none"> • Create factor trees with <ol style="list-style-type: none"> a. cut outs of trees b. artificial foliage • Complete factor trees in at least two different ways. The stems have difficult factors. 	<ul style="list-style-type: none"> • Math Advantage Bk. 6 p. 86 • Harcourt Math Bk. 5 pgs. 268-277 	<ul style="list-style-type: none"> • Make models of factor trees. Students explain models to classmates. • Create booklets with factor trees. Students provide the answer key as well.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 6**

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
5. Write numbers as products of prime numbers using exponential notation where appropriate.	<ul style="list-style-type: none"> Two methods of finding prime factorization of a number are: <ol style="list-style-type: none"> dividing by prime numbers using a factor tree. 			
6. Use prime factors to find LCM and HCF.	<ul style="list-style-type: none"> Least common multiple (LCM) is the smallest of the common multiples in a set of multiples. Example: 8 and 4 -Multiples of 8= 8, 16, 24, 32 -Multiples of 4 = 4, 8, 12, 16 LMC = 8 Highest common factor (HCF) or Greatest common factor (GCF) is the largest of the common factors in a set of factors. Example: 10 and 25 Factors of 10 = 1, 2, 5, 10 Factors of 25= 1, 5, 25 GCF= 5 	<ul style="list-style-type: none"> Use the fraction calculator to identify the HCF of two or more numbers. Create concentration game cards to show sets of numbers and their <ol style="list-style-type: none"> LCM HCF 	<ul style="list-style-type: none"> Harcourt Math Bk. 5 pgs. 260-267 Silver Burdette Mathematics Bk. 5 pgs. 206-208 	<ul style="list-style-type: none"> Who Am I? Students answer questions like the following: <ol style="list-style-type: none"> I am the multiple of 2 and 5. Who am I? The factors of 36 are 1, 2, 3, 4, 6,9, 12,18, and 36. The factors of 81 are, 1, 3, 9, 27, and 81. My answer is 9? Who am I? Students create instructional charts to explain how to use prime factors to find LCM and HCF.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 6**

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>7. Estimate square roots of non- perfect squares using at least one of the following strategies:</p> <ul style="list-style-type: none"> Identify the relationship between the number of digits in a number and the number of digits in its square root. Deduce that if a number lies between two other numbers then the square root of that number must lie between the square roots of the other two numbers. 	<ul style="list-style-type: none"> A non perfect square is a number that cannot be expressed as an integer multiplied by itself. Non- perfect squares do not have square roots that are whole numbers. For example, 7 is not a perfect square. Its square root is 2.65. To calculate the square root of a non-perfect square: <ol style="list-style-type: none"> place the values of the adjacent perfect squares on a number line. Interpolate between the points to estimate to the nearest tenth. <p>Example $\sqrt{27}$</p> <ol style="list-style-type: none"> The perfect square on each side of 27 is 25 (5) and 36 (6). Half way on the number line is 30. Therefore, $\sqrt{27}$ is 5.2 	<ul style="list-style-type: none"> Using a hundreds charts, let students highlight the numbers that are not perfect squares. a. Allow them to also write the square roots of these numbers. 	<ul style="list-style-type: none"> Harcourt Math Bk.5 .pg.258 Math Advantage Bk. 6 .pg. 428 http://www.answers.yahoo.com 	<ul style="list-style-type: none"> Create and solve 5 non-perfect squares.
<p>8. Use HCF to simplify Fractions (Continued).</p>	<ul style="list-style-type: none"> Simplifying fractions means to write them in lowest terms. To simplify fractions using the highest common factor (HCF), divide the numerator and denominator by the HCF. 	<ul style="list-style-type: none"> Guide students to create and manipulate concentration type game cards with a fractional problems and matching simplified forms. Example <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">4/8 x 8/16</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">1/2 x 1/2</div> </div>	<ul style="list-style-type: none"> Harcourt Math Bk. 5 pgs. 294 & 354 Math Advantage. Bk.6. pg. 140 	<ul style="list-style-type: none"> Write fractions in its lowest terms. Complete journal entries to tell and show how to simplify fractions.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 6**

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
8. Use HCF to simplify fractions.	<p>Example: $\frac{2}{6}$</p> $\frac{2 \div 2}{6 \div 2} = \frac{1}{3}$			
9. Read, write, and identify decimals through thousandths.	<ul style="list-style-type: none"> • Decimals are numbers that use place value and a decimal point to show tenths, hundredths, thousandths and so on. • The decimal point is referred to as “and” in oral identification and word form. Call a decimal according to the last place value. <p>Example 2.65 : two and sixty-five hundredths.</p>	<ul style="list-style-type: none"> • Complete charts to show decimals in standard form, word form, and expanded form. 	<ul style="list-style-type: none"> • McDougal Math pg. 108 • Harcourt Math Bk. 5 pgs. 18-24 • Place Value Board 	<ul style="list-style-type: none"> • Complete Review/Test of Harcourt Math Bk. 5 pg. 28, Nos. 5, 8, 10, 14, 17, 19, 20. • Have students prepare and teach a mini lesson.
10. Compare and order whole numbers, fractions and decimals using <, >, and = symbols.	<ul style="list-style-type: none"> • Comparing whole numbers, fractions, or decimals mean to show how they are equal to, less than, or greater than. • Ordering numbers means to place them in order from least to greatest (ascending) or greatest to least (descending). <p>Example: Greatest to least 13.393, 13.309, 13.339, 13.039 13.393, 13.339, 13.309, 13.039</p>	<ul style="list-style-type: none"> • Let students create a domino type game where they compare whole numbers, fractions, and decimals using the symbols >, <, and =. • Have student create a magnetic board that can be used to compare and order numbered strips. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 5 pg. 24 	<ul style="list-style-type: none"> • Journal Writing: How to compare whole numbers, fractions, and decimals using the symbols >, <, and =. Students also give examples.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 6

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
11. Describe orally and in writing equivalent relationship among fractions, decimals, and percent.	<ul style="list-style-type: none"> Fractions, decimals, and percents are equivalent (equal) when they name the same amount in different forms. Example $\frac{1}{2} = 0.5 = 50\%$ <div style="text-align: center; margin-top: 10px;"> <pre> 1/2 = 0.5 = 50% v v v Fraction Decimal Percent </pre> </div>	<ul style="list-style-type: none"> Use the hundred wheel/chart to introduce percent as another way to show a fractional part. Search newspaper for examples of fractions, decimals, and percents. Write the equivalent forms. 	<ul style="list-style-type: none"> Harcourt Math Bk. 5 pgs. 62 & 279 	<ul style="list-style-type: none"> Journal Writing: Describe how fractions, percents, and decimals are equivalent. Cite examples
12. Describe and compare two sets of data using ratios and appropriate notation such as a/b, a to b and a: b.	<ul style="list-style-type: none"> Ratio is the comparison of two numbers/amounts. Ratios are used to compare a part to a part, a part to the whole, or the whole to a part. 	<ul style="list-style-type: none"> Provide students with situations. Let them write ratios in three ways. Example: What is the ratio of vowels to consonant in the word PARALLELOGRAM? <p>Word: five to eight 5 : 8 Fraction: 5/8</p>	<ul style="list-style-type: none"> Harcourt Math 5 pg. 540 www.harcourtschool.com/elab2002 	<ul style="list-style-type: none"> Students create a booklet with pictures or words that can be used for comparisons. <ol style="list-style-type: none"> Write the ratio in three ways. Highlight the condition. For example part to part

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: NUMBER AND NUMBER SENSE
GRADE: 6

Sub-Goal 1: Demonstrate and apply knowledge and sense of numbers, including numeration, patterns, ratios, and proportions.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
13. Represent ratios in decimal form.	<ul style="list-style-type: none"> • Ratio is the comparison of two quantities. Writing ratios as decimals may make it easier to compare ratios. To convert ratios in <ol style="list-style-type: none"> a. Fractions – convert the fraction to a decimal. b. Short word form or standard - write the ratio as a fraction. Convert the fraction to a decimal number. <p>Example 7 out of 10 = 7/10 = 0.7</p>	<ul style="list-style-type: none"> • Allow students to create bookmarks with equivalent ratio and decimal forms. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 5 pg. 560 • Math Advantage Bk. 6 pg. 23 	<ul style="list-style-type: none"> • Written quiz.
14. Identify Pi as a special ratio and explain how it can be used to find the circumference of a circle.	<ul style="list-style-type: none"> • Pi (π) is the ratio of the circumference to the diameter of a circle. • An approximate decimal value of Pi is 3.142 or $22/7$. 	<ul style="list-style-type: none"> • Have students find the circumference or diameter of circular object such as cups, mugs, or CDs. 	<ul style="list-style-type: none"> • Harcourt Math 5 pg. 495 	<ul style="list-style-type: none"> • Written quiz: Students identify Pi as a special ratio and explain how it can be used to find the circumference of a circle.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE 6

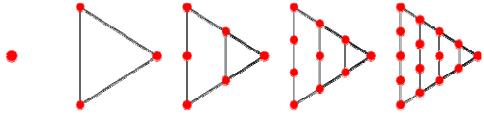
Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationship in data, solve problems and predict results.

Essential Questions

1. How can patterns, relations, and functions be used as tools to best describe and help explain real life situations?
2. What different interpretations can be obtained from a particular pattern or relationship?
3. How can a non-routine problem be solved?
4. How do models, tables, and graphs help to represent, analyze, and extend numerical and geometrical patterns?
5. How do algorithms work in addition, subtraction, division, and multiplication?
6. Why do we use variables?
7. How can algebraic symbols be used to efficiently express mathematical situations?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE 6**

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Identify and construct patterns relating to rectangular, square, oblong, and triangular numbers.</p>	<ul style="list-style-type: none"> • Figurate numbers are represented by geometric patterns. Figurate numbers are sequences generated by figures made up of evenly spaced dots. • Oblong, triangular, rectangular, and square numbers are examples of figurate numbers. • Oblong Numbers: Any number that is the product of two consecutive integers. The first few oblong numbers are: 0, 2, 6, 12, 20, and 30. • Triangular numbers are numbers that create triangles. In other words 1, 3, 6, 10, 15, 21, ... They can be calculated by 1, 1+2, 1+2+3, 1+2+3+4, etc. <div style="text-align: center;">  </div>	<ul style="list-style-type: none"> • Use product grid or an array to build types of numbers. • Create rectangular, oblong, square, and triangular patterns with varied concrete objects. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 5 pgs. 449 & 270 • Math Advantage Bk. 5 p. 539 • www.math-magic.com 	<ul style="list-style-type: none"> • Present students with a variety of numbered patterns. Have them classify the patterns as square, oblong, rectangular, or triangular. Allow students to justify their answers. • Lesson quiz where they complete patterns with and without pictures.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE 6

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
	<ul style="list-style-type: none"> • Rectangular numbers are numbers that create rectangles. Rectangular numbers are: 4, 6, 8, 9, 10, 12, 14, 15, 16, 18, 20, 21, 22, etc. • Square numbers are <u>numbers</u> that is the product of two <u>equal integers</u>. For example 9 is a square number because $9 = 3 \times 3$ 			
2. Solve non-routine problems where finding a pattern is an appropriate strategy.	<ul style="list-style-type: none"> • Non-routine problems are problems that require non-traditional algorithms or sums to solve them. • Non-routine problems provide a more highly probable method for discovering the solution to a problem. Building a model, drawing pictures, work backwards are non-routine problem solving strategies. 	<ul style="list-style-type: none"> • Give students task card with a variety of problems. Allow them to work in groups to develop patterns to solve. For example, how many different handshakes would take place between three and four friends? 	<ul style="list-style-type: none"> • www.mathpentath.org • www.purplemath.com 	<ul style="list-style-type: none"> • Have students create non-routine problems. • Have students create a short video broadcast to show the solutions to specific problems.
3. Use patterns to make computation more efficient (Continued).	<ul style="list-style-type: none"> • Patterns are used to make computation easier. 	<ul style="list-style-type: none"> • Give students a variety of work cards with pattern starters. Let them complete up to the 'n' pattern set 	<ul style="list-style-type: none"> • Harcourt Math Bk.5 pgs. 204 & 148 	<ul style="list-style-type: none"> • Have students create sets of pattern starters and allow their classmates to complete the patterns.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE 6**

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Use patterns to make computation more efficient.	$40 \times 9 = 360$ $400 \times 9 = 3\,600$ $4000 \times 9 = 36\,000$ What pattern do you notice?	For Example: $8 \div 2 = 4$ $80 \div 20 = 4$ $800 \div 20 = 40$ $8000 \div 20 = \underline{\quad}$ $80000 \div 20 = \underline{\quad}$ <ul style="list-style-type: none"> Allow students to teach a mini lesson on the skill. 	<ul style="list-style-type: none"> Math Advantage Bk.6 pg. 70 	<ul style="list-style-type: none"> Complete journal entries to explain how patterns make computation easier. Have students create a quiz.
4. Solve single variable linear equations using pictures and abstraction.	<ul style="list-style-type: none"> A variable is a letter or symbol that stands for a number. A single variable linear equation is an equation that has one variable that represent a number. Example: $5y = 20$ $y = 4$ 	<ul style="list-style-type: none"> Present students with problems and guide them to write and solve equations. 	<ul style="list-style-type: none"> Harcourt Math Bk.5 pg. 412 enVision Math Bk. 5. p. 73 	<ul style="list-style-type: none"> Students will create single variable linear equations with answer key. Have students design a learning centre with their unique equations and answer keys.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA
GRADE 6**

Sub-Goal 2: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
5. Solve story problems using algebraic equations.	<ul style="list-style-type: none"> An algebraic equation is a number sentence that has a number, a variable, and uses the equal sign to show that two amounts are equal. $2 + y = 53$	<ul style="list-style-type: none"> Present students with stories. Guide them to write and solve equations. <p>Example Pete had 13 apples. Tina also had the same number of apples. Together they had 26 apples. How many apples did they have? $13 + y = 26$ $y = 26 - 13$ $y = 13$</p> <ul style="list-style-type: none"> Let students: <ul style="list-style-type: none"> Create stories Write answer keys Exchange stories and solve problems 	<ul style="list-style-type: none"> Harcourt Math 5 pg. 72 Math Advantage Bk.6 pg.298 	<ul style="list-style-type: none"> Students will write and solve algebraic equations from stories. Have students create and perform skits based on their stories.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 6

Sub-Goal 3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

Essential Questions

1. How is estimation beneficial in real life situations?
2. How is mental mathematics useful? When is mental mathematics most useful?
3. How are models used to show how fractional parts are combined or separated?
4. Why is the order of operations essential?
5. How are commutative and associative properties different?
6. How are fractions, decimals and percent related?
7. Why is it useful to know how to convert among fractions, decimals, and percent?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 6**

Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>1. Estimate by several methods including rounding.</p>	<ul style="list-style-type: none"> • Estimate means to find an answer that is closest to the exact answer. The answer is found by rounding, by clustering, or by using compatible numbers. • Rounding means to replace a number with one that tells about how many or how much. • Clustering is a method of rounding when all the addends are about the same. Example $669 + 678 + 699 + 682 = 700 \times 4$ or 2800 • Compatible numbers are pairs of numbers that are easy to compute mentally. Example: Compatible numbers for 6 are divisible by 6 such as 12, 18, 24, 30, ... $541 \div 7 = 490 \div 7 = 70$ or $541 \div 7 = 560 \div 7 = 80$ 	<ul style="list-style-type: none"> • Guide students to solve problems using rounding, clustering, or using compatible numbers. • Show students sets of numbers. Example: $673 \rightarrow 670$ Have students tell which method was used to estimate rounding. Answer: Rounding 	<ul style="list-style-type: none"> • Harcourt Math 5 pgs. 34, 48, 50, 56, 186 & 187 • http://wiki.answers.com 	<ul style="list-style-type: none"> • Have students create a bulletin board display to show methods for estimating numbers.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 6**

Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Apply the divisibility rules for 2, 3, 4, 5, 6, 8, 9,10.	<ul style="list-style-type: none"> • A number is divisible by another number when the quotient is a whole number and there is a remainder of zero. • Divisibility rules can help you find factors. <p>Example: A number is divisible by:</p> <ul style="list-style-type: none"> a. 2 if the last digit is an even number. b. 3 if the sum of the digits is divisible by 3 c. 4 if the last two digits form a number divisible by 4. d. 5 if the last digit is 0 or 5 e. 6 if the number is divisible by 2 and 3 f. 8 if the last three digits are divisible by 8 g. 9 if the sum of the digits is divisible by 9 h. 10 if the last digit is 0. 	<ul style="list-style-type: none"> • Divisible Numbers <ul style="list-style-type: none"> a. Students work in groups of 2-4. b. Teacher gives students a number to use as a divisor. c. Students roll three to four dice (numbered cubes) then write as many 3-digit or 4-digit numbers that are divisible by the given divisor within 2 minutes. 	<ul style="list-style-type: none"> • http://www.aboutmath.com • http://www.basicmath.com • Harcourt Math Bk. 5. pgs. 258 & 259 	<ul style="list-style-type: none"> • Give students important dates in Bahamian history like 1492 and 1973 where they use the divisibility rules to determine if the number is divisible by 2, 3, 4, 6, 9, or 10. • Give students 3 or 4 digits where they form as many numbers that are divisible by a given divisor. Example: Use the digits 8 4 6 0 and make numbers that are divisible by 4 8640; 6048; 8640; 6840; 4608

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 6**

Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>3. Apply mental math strategies to addition, subtraction, multiplication, and division (Continued).</p>	<ul style="list-style-type: none"> • Mental Math strategies do not require paper and pencil for arithmetic calculations • Addition: Use addition properties of zero, commutative, or associative. Example $7 + (9 + 6) = (7 + 9) + 6$ • Compensation is a property where you add an amount to one number and subtract an amount from the other to make a simpler addition. Example 1: $58 + 72 = (58+2) + (72-2)$ This way you get an easy operation, $60 + 70$ and can do it mentally. Example 2: Change one addend to a multiple of ten and then adjust the other addend to maintain the balance. $426 + 394$ $(426 + 6) + 394 + 6 = 432 + 400 = 832$ • Multiplication: Use the identity, distributive, commutative, or associative properties. 	<ul style="list-style-type: none"> • Provide students with opportunities to apply mental math strategies involving the four operations. • Math Relay <ol style="list-style-type: none"> a. Students complete number sentences in 15 seconds. The person with the most points wins the game. 	<ul style="list-style-type: none"> • Math Advantages Bk. 6 pgs. 36, 78 & 79 • Activity booklet of mental Mathematics: Department of Education 2007 • http://www.hbschool.com/glossary/math2 • http://www.bbc.co.uk/skillwise/numbers • http://wiki.answers.com 	<ul style="list-style-type: none"> • Students complete a speed test by applying mental math strategies using the four rules.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 6**

Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Apply mental math strategies to addition, subtraction, multiplication, and division..	i. Move the decimal point when multiplying by whole number powers of ten or decimal powers of tenth. • Division: Use the divisibility rules to move the decimal point when dividing by whole number powers of ten or decimal powers of tenth.			
4. Perform calculations using addition, subtraction, multiplication, and division to solve problems.	<ul style="list-style-type: none"> • Addition, subtraction, multiplication, and division are referred to as the four rules of operations. • Math vocabulary words or phases in word problems determine which of the four rules of operations should be used to solve word problems 	<ul style="list-style-type: none"> • Create an obstacle course setting with a variety of problems. Instruct students to manipulate the course by completing the problems. Time students. • Game: Pass it On <ol style="list-style-type: none"> a. The teacher calls out a number then tosses the ball to a student. b. The first student adds a number to the number given by the teacher, and then tosses the ball. c. The second student gives the sum, and then subtracts a number from it. The ball is tossed to the next student. d. The third student gives the difference and then gives a number to multiply the difference by. 	<ul style="list-style-type: none"> • Harcourt Math 5 pgs. 65A & 65B, 144 & 145 • ball • http://www.lxL.com 	<ul style="list-style-type: none"> • Students match addition, subtraction, multiplication, and division problems with their answers. Additionally, they must provide justification.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 6

Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
		e. The fourth student gives the product and a number to divide the product by. Then the ball is tossed to the next student. f. The fifth student gives the quotient. He/She starts the game over by stating a number and then tossing the ball to another student. g. Any student who is unable to supply an answer is out of the game. • Guide students to compile a booklet with a variety of unique word problems. Students will highlight vocabulary words/phrases that assist with problem solving.		
5. Multiply and divide given amounts of money (No decimal divisors).	<ul style="list-style-type: none"> • Multiplication and division are inverse operations. • The rules for multiplying and dividing decimals apply to multiplying and dividing money. 	<ul style="list-style-type: none"> • Allow students to participate in shopping sprees. Set up shopping centre like environment in the classroom. Provide students with list of items they must select. i. Set a time limit. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 5 pgs. 164, 225 	<ul style="list-style-type: none"> • Students solve problems in which they multiply and divide amounts of money.
6. Apply rules of order of operations (Continued).	<ul style="list-style-type: none"> • Order of operations is a set of rules used to solve an expression with more than one operation. • You must know which operation to do first. Two mnemonics for remembering the orders are: (a) PEMDAS <ul style="list-style-type: none"> i. Perform operations in parenthesis ii. Clear exponents 	<ul style="list-style-type: none"> • Allow student to create unique equations that require the rules of order of operations. • Give students a variety of equations where some are correct and others incorrect. Let students justify why equations are correct or incorrect (Can be done orally or in writing). 	<ul style="list-style-type: none"> • Harcourt Math 5 pg. 88 • Math Advantage 6 pg. 48 • http://www.hbschool.com/elab 	<ul style="list-style-type: none"> • Students solve equations in which they apply the rules of order of operations.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 6

Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
6. Apply rules of order of operations.	iii. Multiply and divide from left to right iv Add or subtract from left to right (b) BODMAS i. bracket first ii. Orders (ie. Powers, square root, etc.) iii. Division and multiplication (left to right) iv. Addition and subtraction (left to right) Example: $47 + (3 \times 2^2 + 9)$ $47 + (3 \times 4 + 9)$ $47 + (12 + 9)$ $47 + 21 = 68$			
7. Simplify fractions (Continued).	<ul style="list-style-type: none"> Simplifying fractions means to divide both the top and bottom of the fraction until you can't go any further (try dividing by 2,3,5,7,... etc). You can find the common factors for the numerator and the denominator. Find the greatest common factor (GCF). Divide this numerator and denominator by their GCF . Example: $\frac{24}{30}$ $24 = 2, 3, 4, 6, 8, 12, \dots$ $30 = 2, 3, 5, 6, 10, 15$ 	<ul style="list-style-type: none"> Use fraction models to demonstrate how to simplify fractions. Teacher directs students to create maze games. The path has all fractions in simplest form, which leads to specific goals. 	<ul style="list-style-type: none"> Harcourt Math Bk. 5 pgs. 294-297, 354 Math Advantage Bk. 6 pg. 140 http://www.aboutmath.com 	<ul style="list-style-type: none"> Students explain in their mathematics journals how to simplify a fraction. Students also create and solve two word problems.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 6

Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basis operations; addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
7. Simplify fractions.	The common factors are 2, 3, and 6. The GCF is 6. $\frac{24}{30} \div \frac{6}{6} = \frac{4}{5}$			
8. Apply rules of addition and subtraction to fractions and mixed numbers without and with regrouping.	<ul style="list-style-type: none"> A mixed number is a whole number and fraction combined. To find mixed numbers, follow these steps. Step 1: Find the LCM and then write as equivalent fractions. Step 2: Add or subtract the fractions. Step 3: Add or subtract the whole numbers. Step 4: If you cannot add or subtract the whole numbers regroup and then perform the necessary operation. Step 5: Simplify if possible. 	<ul style="list-style-type: none"> Allow students to use fractional models to illustrate problems with solution. Give students recipes with fractions of common ingredients. Students find the amount of that item by adding and subtracting to make the ingredient more or less for the required number of persons. 	<ul style="list-style-type: none"> Harcourt Math Bk.5 pgs. 332-336 Math Advantage Bk. 6 pgs. 120-122 http://www.edhelper.com 	<ul style="list-style-type: none"> Students use fraction bars to model addition and subtraction of mixed numbers. Give students a mixed number. Have them write an addition and subtraction number sentence that would result in that mixed number. Answers may vary. Example: $3 \frac{1}{2}$ Addition sentence $1 \frac{1}{4} + 2 \frac{1}{4} = 3 \frac{2}{4} = 3 \frac{1}{2}$ Subtraction Sentence $8 \frac{7}{10} - 5 \frac{1}{5} =$ $8 \frac{7}{10} - 5 \frac{2}{10} = 3 \frac{5}{10} = 3 \frac{1}{2}$

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 6

Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
9. Apply rules of multiplication to fractions.	<ul style="list-style-type: none"> • Multiplying fractions: <ol style="list-style-type: none"> a. Reduce to simplest terms if possible. b. Multiply the numerators c. Multiply the denominators 	<ul style="list-style-type: none"> • Fraction Bingo <ol style="list-style-type: none"> a. The teacher reads a fraction multiplication sentence. b. Students complete the sentence and cover the product on their Bingo cards. c. The first child to cover five boxes horizontally, vertically, or diagonally wins the game. • Provide solutions to word problems. Let student write possible problems. 	<ul style="list-style-type: none"> • Harcourt Math Bk.5 pg. 348 • Math Advantage Bk. 6 pg.136 • http://www.aboutmath.com 	<ul style="list-style-type: none"> • Students solve fraction word problems that require multiplication.
10. Convert from fractions to decimal to percent (include mixed numbers such as $1\frac{1}{2}$ =1.5) (Continued).	<ul style="list-style-type: none"> • Fractions, decimals and percents have equivalent forms to convert: <ol style="list-style-type: none"> a. Fraction to decimals <ul style="list-style-type: none"> - divide numerator by denominator b. Fraction to percents <ul style="list-style-type: none"> - multiply to find equivalent ratios - divide numerator by denominators c. Decimals to percents <ul style="list-style-type: none"> - multiply by 100 or use place value d. Decimals to fractions <ul style="list-style-type: none"> - use place value e. Percent to decimals divide by 100 	<ul style="list-style-type: none"> ▪ Guide students to create game cards. One-half of the cards will have the conversion form and the other half will state the rules. Example: Decimals to fraction use place value % as decimals divide by 100 • Give students advertisement from newspapers that entail fractions, percents, or decimals. Students convert the data from the advertisement to decimals, percents, or fractions. 	<ul style="list-style-type: none"> • Harcourt Math 5 page 560 • Math Advantage Bk. 6 pgs.22, 23, 336, 337 • newspapers 	<ul style="list-style-type: none"> • Students make a flowchart showing the conversion of fractions to decimals to percent. • Students design newspaper advertisements with percents, fractions, and decimals.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 6**

Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
10. Convert from fractions to decimal to percent (include mixed numbers such as $1\frac{1}{2}$ =1.5)	f. Percents to fractions - write the percent as ratio (numerator) - with second term (denominator) of 100. Write in simplest form.			
11. Apply rules of addition subtraction, multiplication and division to decimals.	<ul style="list-style-type: none"> • A decimal number is a number with one or more digits to the right of a decimal point. • To add or subtract decimal numbers, align decimal points in place value position. Add or subtract from right to left. Regroup as needed. • To multiply decimals, multiply the factors as whole numbers. Place the decimal point in the product after finding the total number of decimal places in the factors. Count that many places from the right in the product. • Division of decimals numbers is similar to division of whole numbers. In vertical or column division, place the decimal point in the quotient above the decimal point in the dividend. In horizontal division, place the decimal point in the quotient. 	<ul style="list-style-type: none"> • Going Grocery Shopping <ol style="list-style-type: none"> a. Students visit a grocery store to collect cost of specific items using a pre-designed worksheet. b. At a convenient location, have students perform calculations involving the four operations. • Using maps of The Bahamas, students add, subtract, multiply, and divide distances in decimals. 	<ul style="list-style-type: none"> • Harcourt Math Bk.5 pg. 50 Addition pg. 168 Multiplication pg. 226 Division • Math Advantage Bk. 6 pg. 64 • http://www.lxL.com • maps 	<ul style="list-style-type: none"> • In groups, have students write and dramatize television commercials that demonstrate how to add, subtract, multiply and divide decimals.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: COMPUTATION AND ESTIMATION
GRADE: 6

Sub-Goal -3: Estimate and understand the meaning, use, and connection between the four (4) basic operations; addition, subtraction, division and multiplication.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
12. Create and solve problems using fractions and decimals.	<ul style="list-style-type: none"> Fractions and decimals represent a part of a group 	<ul style="list-style-type: none"> Let groups of students <ol style="list-style-type: none"> Create game boards with problems and answer keys Exchange games and manipulate. 		<ul style="list-style-type: none"> Compile a booklet of unique problems and supply an answer key.
13. Explain the relationship among fractions, decimals, and percents.	<ul style="list-style-type: none"> Ratios of numbers can be written as percents, fractions, and decimals. Fractions, decimals, and percents are related in their equivalent states. Percents greater than 100 are represented as a decimal greater than 1. A percent is compared to part of a 100. A decimal represents a number of hundredth. 	<ul style="list-style-type: none"> Guide students to use models to create a display of equivalent fractions, decimals, and percents. Using raw scores of quizzes, students explain how the grades become a percent. 	<ul style="list-style-type: none"> Harcourt Math 5 pg. 560 	<ul style="list-style-type: none"> Students write in their mathematics journals to explain how fractions, decimals, and percents are related. Additionally, students give examples.
14. Mentally compute the percent of a number.	<ul style="list-style-type: none"> Other percentages can be related to 10% as this is an easy amount to calculate. Example 10 % of 20 = 2 Using 10 we move the decimal place once in the number 20 to get 2. Other simple percentages to calculate mentally are 20 %, 25%, and 50%. 	<ul style="list-style-type: none"> Using the population numbers of the islands of The Bahamas, students calculate percents of these numbers based on national averages. Example: If 60 % of Andros' population is under the age of 18, how much is that? Have students practice using mental math to calculate the percent of various numbers. 	<ul style="list-style-type: none"> Harcourt Math Bk. 5 pg. 568 Nodehillmaths.typepad.com/my/2008/calculating-per/html http://www.youtube.com 	<ul style="list-style-type: none"> Create brochures explaining how using multiples of 10 make mental math with percent easier.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 6

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy.

Essential Questions

1. What is perimeter and how is it measured?
2. How do you find perimeter, area, and volume of geometric figures?
3. Why is it easier to use a geometric formula to solve real-world problems?
4. Why is it important to be able to convert from one unit of measurement to another?
5. How will using the tools and relationships of measures in the metric and customary systems help to estimate or find solutions to real-world problems?
6. What does the acronym SI stand for? How can we use SI to write dates?
7. Why is it important to know how to use the formula $D = R \times T$?
8. How can you use reading and interpreting scales on maps in everyday life?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 6**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT									
1. Identify if a given situation requires a measure of length, volume, capacity, temperature, or mass.	<ul style="list-style-type: none"> Certain situations require specific measuring outcomes. For example: <ol style="list-style-type: none"> A person's height- measure of length. The amount of water needed to fill a cup-capacity. 	<ul style="list-style-type: none"> Give groups of students' different measurement topic: length, mass, volume, or capacity. Have students generate examples of situations that use assigned types of measurement. 	<ul style="list-style-type: none"> Harcourt Math Bk.5 pg. 4 	<ul style="list-style-type: none"> Have students create and solve story problems in their mathematics journals 									
2. Estimate and measure length/distance, volume, capacity mass and temperature in metric units.	<ul style="list-style-type: none"> Metric units of length: millimetre, centimetre and metre, kilometre. Volume is the amount of space a solid figure occupies. It is measured in cubic units. Capacity is the amount a container can hold. Metric units of capacity are millilitre, litre, and kilolitre. Mass is the amount of matter in an object. Metric limits of mass are milligrams, gram, and kilogram. Temperature is the hotness or coldness of a body or environment. 	<ul style="list-style-type: none"> Allow students to estimate and measure real objects. Then have them show the information on a table. <p>For Example:</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Object/Item</th> <th>Estimation</th> <th>Actual Measure</th> </tr> </thead> <tbody> <tr> <td>1. A cup of ice.</td> <td></td> <td></td> </tr> <tr> <td>2. distance around a desk or table</td> <td></td> <td></td> </tr> </tbody> </table>	Object/Item	Estimation	Actual Measure	1. A cup of ice.			2. distance around a desk or table			<ul style="list-style-type: none"> Harcourt Math 5 pgs. 476, 522, 482 	<ul style="list-style-type: none"> Quiz Example: What would be the most appropriate measure for the volume of a soda can? i. a. 360mL b. 2 liters c. 50 liters. Students write in their mathematics journal explaining how to estimate and measure length/distance, volume, capacity mass and temperature in metric units.
Object/Item	Estimation	Actual Measure											
1. A cup of ice.													
2. distance around a desk or table													

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 6**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT				
<p>3. Solve problems in measurement which require the conversion of units.</p>	<ul style="list-style-type: none"> • Some problems require conversion of units. To change smaller units to larger units, divide. • To change larger units to smaller units, multiply. • Units <ul style="list-style-type: none"> a. 7 days = 1 week b. 60 seconds = 1 minute c. 1 month= 28 to 31 days or about 4 weeks d. 1year = 12 months or 52 weeks or 365 days • Customary Measures <ul style="list-style-type: none"> 1 quart = 2 pints 1 gallon = 4 quarts 1 foot = 12 inches 	<ul style="list-style-type: none"> • Place students in cooperate groups. Each group is given a problem to solve. Students solve problems and report findings to class. <p>Sample questions</p> <ul style="list-style-type: none"> a. The instructions for a science experiment call for 227 milligrams of potassium. What is the difference between this amount and 1 gram? b. The longest mammal is the blue whale. Its length is 31 meters. How many centimeters is that? c. David is making punch. He needs 3 cups of orange juice and 6 pints of lemonade. How many fluid ounces of orange juice and how many quarts of lemonade does he need? d. How many days are in 7 months? 	<ul style="list-style-type: none"> • Harcourt Math Bk.5 pg. 476 	<ul style="list-style-type: none"> • Create charts to show the rules for converting from one metric unit to another. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Items</th> <th style="width: 50%;">Items</th> </tr> </thead> <tbody> <tr> <td>kilo to hecto multiply by__</td> <td>gram to kilo divide by ____</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Have students create and solve story problems in their mathematics journals 	Items	Items	kilo to hecto multiply by__	gram to kilo divide by ____
Items	Items							
kilo to hecto multiply by__	gram to kilo divide by ____							

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 6**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
4. Express metric measure using decimal notation.	<ul style="list-style-type: none"> • Decimal notation is the writing of a number in decimal form. Example: 50 cm = 0.5m • Use calculators to change linear units 	<ul style="list-style-type: none"> • The class is divided into two teams to play the game Metric Decimals. <ol style="list-style-type: none"> a. Teacher calls metric measure problems. The group writes decimal notation on a miniature chalk or dry erase board. b. If the answer is correct, the team gets the point. If the team does not get the problem correct, it is referred to the next team. The team with the most points wins the game. 	<ul style="list-style-type: none"> • Harcourt Math Bk.5 pgs. 474-479 	<ul style="list-style-type: none"> • Have students write the decimal notations for numbers given.
5. Describe how other countries measure (time and money). (Continued)	<ul style="list-style-type: none"> • Some countries measure in ways that are different from ours. For examples in Haiti, money can be written as 10, 00 for \$10.00. • Some countries use customary units and others use metric measures. 	<ul style="list-style-type: none"> • Have students examine the ways other countries measure that is different from ours. Create Venn diagrams to compare/ contrast details. • Create a sundial to explore time. 	<ul style="list-style-type: none"> • http://www.eduplace.com 	<ul style="list-style-type: none"> • Create a unit of measure that can be used in a country. Have students explain how they came up with their invention.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 6**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
5. Describe how other countries measure (time and money).	<ul style="list-style-type: none"> • Customary measurements include feet for length, gallons for capacity, and pounds for mass. Some countries that use the metric units are Rome, Germany, and the United States of America. • Metric units include metre for length, liter for capacity and gram for mass. Some countries that use this system are Australia and New Zealand. 			
6. Describe and record the date in SI format.	<ul style="list-style-type: none"> • SI means International System of Units. The units are placed in order starting with the largest first. <p style="margin-left: 40px;">Example: Year Month Day 1998 2 14</p>	<ul style="list-style-type: none"> • Allow students to create a directory of dates important to them in SI Format. • Students create a list of countries and occupations that use the SI Format. 	<ul style="list-style-type: none"> • http://www.w3.org • Mathematics in Motion: A Resource Book for Primary Teachers, pg. 118 	<ul style="list-style-type: none"> • Create a timeline of historical dates in SI format. • Complete test items that allow students to <ol style="list-style-type: none"> a. Select dates in SI format b. Write dates in SI format

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 6**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT																														
7. Solve non-routine problems involving measures.	<ul style="list-style-type: none"> Non-routine problems are unlike the common types that require a formula or state specific tools to use to solve them. Critical thinking skills are necessary to arrive at a solution. 	<ul style="list-style-type: none"> Have students work in groups to provide solutions to open ended problems such as: <ol style="list-style-type: none"> How many cornflakes are in a box? How many students can fill a specific area? 	<ul style="list-style-type: none"> http://www.teachers.net.qa 	<ul style="list-style-type: none"> Have students work in pairs to investigate how many different totals they can make choosing two of the numbers: 6, 7, 8, and 9. <ol style="list-style-type: none"> Allow the pairs some time to work on the problem in whatever way they decide Encourage students to organize their work in a two-way table. Discuss the different ways that they are keeping track of the possible combinations of numbers. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th style="background-color: #cccccc;">+</th> <th style="background-color: #cccccc;">6</th> <th style="background-color: #cccccc;">7</th> <th style="background-color: #cccccc;">8</th> <th style="background-color: #cccccc;">9</th> </tr> </thead> <tbody> <tr> <td>6</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>7</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>8</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>9</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> Teacher asks the following questions. <ol style="list-style-type: none"> What do you noticed about the table? It is symmetrical about the diagonal What is the minimum total? (12) What is the maximum total? (18) How many different totals are there in the table? (12) 	+	6	7	8	9	6					7					8					9									
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**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 6**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>8. Apply area and perimeter formulas to triangles and rectangles.</p>	<ul style="list-style-type: none"> • Perimeter is the distance around a figure. • Formula to find perimeter: <ul style="list-style-type: none"> a. Regular Polygons: Perimeter = sum of the number of sides b. Rectangles : Perimeter = $(2 \times \text{length}) + (2 \times \text{width})$ • Area is the number of square units needed to cover a surface. • Formula to find Area: <ul style="list-style-type: none"> a. Area of square = side x side b. Area of rectangle = length x width c. Area of triangles = $\frac{1}{2} \times (b \times h)$ <p>Note: Include unknown sides in problems.</p>	<ul style="list-style-type: none"> • Have students measure triangular and rectangular shaped areas. • Find the area and perimeter of your garden at home or at school. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 5 pgs. 492, 406, 500 	<ul style="list-style-type: none"> • Find the area and perimeter of a room in your house. • Quiz: Students use the formula to calculate the area and perimeter of triangular and rectangular figures.

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: MEASUREMENT
GRADE: 6**

Sub-Goal 4: Make and use measurements of objects, quantities, and relationships, and determine acceptable level of accuracy.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT																
9. Solve problems using km/hr where students apply $r \times t = d$, and $s = d \times t$ formula.	<ul style="list-style-type: none"> When people travel somewhere, on a trip, they want to figure out how far it is from the destination and how long it will take to get there. The formula rate x time is used to calculate distance traveled. $D = R \times T$ The formula distance x time is used to calculate the speed. $S = D \times T$ 	<ul style="list-style-type: none"> Guide students to set up a ramp and race match boxcars. Time the cars and the distance they travel. Compute the rate of travel. 	<ul style="list-style-type: none"> Math Advantage Bk. 6 pg. 318 	<ul style="list-style-type: none"> Complete a chart to show outcomes. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Car</th> <th>Time</th> <th>Distance</th> <th>Rate</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>7</td> <td>4</td> <td>?</td> </tr> <tr> <td>B</td> <td>?</td> <td>16</td> <td>2</td> </tr> <tr> <td>C</td> <td>3</td> <td>?</td> <td>9</td> </tr> </tbody> </table>	Car	Time	Distance	Rate	A	7	4	?	B	?	16	2	C	3	?	9
Car	Time	Distance	Rate																	
A	7	4	?																	
B	?	16	2																	
C	3	?	9																	
10. Read and interpret scales on maps.	<ul style="list-style-type: none"> Scale is a ratio between two sets of measurement. On maps, scales are used to convert distances on the earth to distances on paper. Scales compare inches or centimetres on a map to miles or kilometres on a real surface. To compare distances on a map with actual distances, use the ratio map actual distance. 	<ul style="list-style-type: none"> Have students measure and draw to scale (on cm graph paper) their classroom and a room in their house. 	<ul style="list-style-type: none"> Math Advantage Bk. 6 pg. 390 Harcourt Math Bk.5 pg. 548 	<ul style="list-style-type: none"> Have students use scales on maps to: <ol style="list-style-type: none"> explain what the ratios represents compare scales: draw conclusion about how events could happened. 																
11. Estimate and measure area of rectangular and irregular polygons.	<ul style="list-style-type: none"> Area is the number of square units needed to fill in a shape. Guide the students to find the area. 	<ul style="list-style-type: none"> Provide students with a variety of irregular shaped polygons. Have students trace outlines of the polygons on grid paper and find the area thereof. 	<ul style="list-style-type: none"> Harcourt Math Bk.5 pg. 508 	<ul style="list-style-type: none"> Have students find the area of irregular polygons using grid paper. 																

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 6

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

Essential Questions

1. How can describing, classifying, and comparing properties of different lines, angles, and certain 2- and 3-dimensional shapes be useful for solving geometric problems in our 3-D world?
2. How can transformations and symmetry be used to investigate and describe geometric situations?
3. How are points, lines, line segments, rays, and angles related?
4. What are some examples of lines and line segments in the real world?

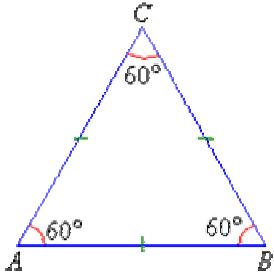
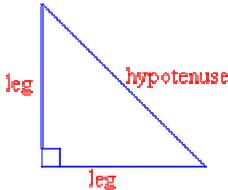
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 6**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Identify types of quadrilaterals and their properties.	<ul style="list-style-type: none"> • Quadrilaterals are polygons with four sides and four angles. Some common quadrilaterals and their properties are: <ul style="list-style-type: none"> a. Square :Four congruent sides and four right angles. b. Rectangles : Two pairs of congruent sides and four right angles. c. Parallelograms: Two pairs of congruent sides and two pairs of parallel sides. d. Rhombus: four congruent sides and two pairs of congruent angles. e. Trapezoid: exactly one pair of parallel sides. 	<ul style="list-style-type: none"> • Allow students to <ul style="list-style-type: none"> a. create models of quadrilaterals b. construct figures such as a building with various quadrilaterals. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 5 pg. 450 • Mathematics in Motion: A Resource Book for Primary Teachers, pg. 79 • kwiznet.com • prometheanplanet.com 	<ul style="list-style-type: none"> • Create models of quadrilateral with specific properties. • Complete test items.
2. Classify and name triangles as scalene, isosceles, and equilateral (Continued).	<ul style="list-style-type: none"> • Triangles can be classified by the length of their sides. • A scalene triangle has no congruent sides. • An isosceles triangle has two sides that are congruent. 	<ul style="list-style-type: none"> • Have students: <ul style="list-style-type: none"> (a) show examples of triangles by using grid paper. (b) examine flags of various countries and name the triangles on the flags. 	<ul style="list-style-type: none"> • Harcourt Math Bk.5 pg. 446 • aaamath.com • prometheanplanet.com 	<ul style="list-style-type: none"> • Create songs to identify triangles and their properties. • Using a map of The Bahamas, students plot three trips to separate destination that form a triangle. Students identify the triangles that are formed by these trips (plots).

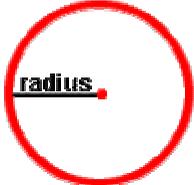
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 6**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>2. Classify and name triangles as scalene, isosceles, and equilateral.</p>	<ul style="list-style-type: none"> An equilateral triangle has all congruent sides. 			
<p>3. Classify and name triangles as right, acute, and obtuse (Continued).</p>	<ul style="list-style-type: none"> Triangles can be classified by the measures of their angles. A triangle that has a right angle (90°) is a right angle triangle. The hypotenuse is the side opposite the right angle and is the longest side. The other sides are called legs.  <ul style="list-style-type: none"> An acute triangle has three acute angles. An acute angle is an angle measuring between 0 and 90 degrees (less than 90°). 	<ul style="list-style-type: none"> Students create an electrical circuit board to match triangles and their properties. Students classify and name triangles formed by three points in their environment. 	<ul style="list-style-type: none"> Harcourt Math Bk. 5 pg. 446 http://www.swego.org http://promethaeplanet.com 	<ul style="list-style-type: none"> Match triangles and their properties. Create songs and poems about triangles.

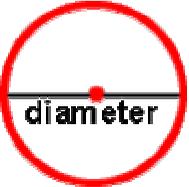
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 6**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
3. Classify and name triangles as right, acute, and obtuse.	<ul style="list-style-type: none"> An obtuse triangle has one obtuse angle. An obtuse angle measures between 90° and 180° degrees. 			<ul style="list-style-type: none"> Create and highlight parts of a circle. Write in mathematics journal how to classify the various triangles.
4. Find the lines of symmetry in polygons.	<ul style="list-style-type: none"> A polygon has a line symmetry if it can be reflected on a line so that the two parts are congruent. 	<ul style="list-style-type: none"> Allow students to use grid paper to determine if polygons have line symmetry. <ol style="list-style-type: none"> Fold the figures in half in various ways. Highlight lines that prove the figure is symmetrical. <p>Use miras to justify symmetrical figures.</p> 	<ul style="list-style-type: none"> Harcourt Math Bk.5 pg. 438 linkslearning.org prometheanplanet.com mira 	<ul style="list-style-type: none"> Draw polygons and highlight lines of symmetry. Have students make a scrapbook showing the lines of symmetry of various polygons.
5. Identify parts of a circle: <ul style="list-style-type: none"> Centre Radius Diameter Circumference. 	<ul style="list-style-type: none"> A circle is a closed plane figure with all points the same distance from the centre point. It has no beginning point and no end point. The radius is a line segment that connects the centre with a point on the circle. 	<ul style="list-style-type: none"> Using a cake, place an M & M at the centre of the cake. <ol style="list-style-type: none"> Use white icing to highlight the circumference. Use colored sprinkles (candies) to show the diameter. A row of gummy bears can represent the radius. In pairs, students create riddles about parts of a circle. 	<ul style="list-style-type: none"> Harcourt Math Bk. 5 pg. 432 helpingwithmath.com prometheanplanet.com Mathematics in Motion: A Resource Book for Elementary Teachers, pg. 90 	<ul style="list-style-type: none"> Create a chart highlight parts of a circle. Write in mathematics journals their favorite part of the circle and explain why they have selected the part.

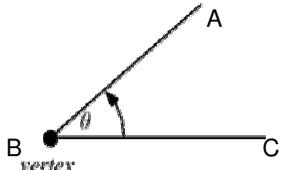
**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 6**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
	<ul style="list-style-type: none"> The diameter is a chord that passes through the centre of the circle.  <ul style="list-style-type: none"> The circumference is the distance around the circle. 			
<p>6. Identify motions of transformation as translation, reflection, or rotation.</p>	<ul style="list-style-type: none"> Motions, movement, or rigid transformations do not change the size or shape of a figure, only its position. Slides or translation is the movement of a figure along a straight line. Flip or reflection is the movement of a figure over a line. Turn or rotation is the movement of a figure around a vertex or point of rotation. 	<ul style="list-style-type: none"> Have students use graph paper to show types of transformations. Using graph paper have students: <ol style="list-style-type: none"> draw coordinate planes graph specific points and connect them to form intended figures. trace the figure on a sheet of paper and cut it out. place the cut out figure on the figure draw on the co-ordinate plane. translate, reflect, or rotate the cut out figure. 	<ul style="list-style-type: none"> Harcourt Math Bk. 5 pg. 452 Math Advantage Bk.6 pg. 522 edhelper.com prometheanplanet.com 	<ul style="list-style-type: none"> Display examples of transformations using objects. Participate in a debate: Which transformation is best?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: GEOMETRY
GRADE: 6**

Sub-Goal 5: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
<p>7. Identify angles through estimation and measurement as acute, obtuse, or right.</p>	<ul style="list-style-type: none"> • An angle is formed by two rays with the same end point. • Angles can be named by three letters: - a point from each side and the vertex as the middle letter. They can also be named by a single letter, their vertices.  <ul style="list-style-type: none"> • Angles can be different sizes. <ul style="list-style-type: none"> a. An acute angle is greater than 0 and less than 90°. b. An obtuse angle is greater than 90° and less than 180°. c. A right angle measures 90°. 	<ul style="list-style-type: none"> • Students create models that can be used to show types of angles. For example: <ol style="list-style-type: none"> a. Guide students to join two drinking straws by inserting the twister from a sandwich/ bread bag into one of the ends of each straw. This model can be bent to form any angle. b. Have student estimate the setting for specific degree settings and check their estimates by measuring with a protractor. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 5 pg. 422 • Mathematics in Motion: A Resource Book for Primary Teachers, pg. 82 	<ul style="list-style-type: none"> • Make models using toothpicks

**SCOPE OF WORK SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 6**

Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability

Essential Questions

1. Why are graphs important?
2. What are some ways to collect data for graphs?
3. How does the type of data influence the choice of graph?
4. How can the mean, median, mode, and range be used to describe the shape of the data?
5. How can the mean, median, and mode be computed and compared?
6. What is probability?
7. How is the probability of an event determined and described?

**SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 6**

Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability.

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
1. Identify the type of graph (s) most suitable for displaying a given set of data.	<ul style="list-style-type: none"> • A graph is a table that displays data. • Pictographs display countable data with symbols or pictures. They have a key to show that each picture represents a specific amount. • Bar graphs display countable data with horizontal or vertical bars. They allow you to compare facts about groups of data. • Line graphs show how data change over time. • Circle graphs show how parts of data are related to the whole and to each other. • Compare and contrast types of graphs. 	<ul style="list-style-type: none"> • Have students collect data from local media sources. Students will create displays to show the kinds of graphs used to display the data. • Have students create and manipulate pieces for concentration game. Students will use pictures of graphs, definitions, and specific data to create questions and answers. 	<ul style="list-style-type: none"> • Harcourt Math Bk. pg.112 • Math Advantage Bk. 6 pg. 240 • envision Math Bk. 5 pgs 432-449 	<ul style="list-style-type: none"> • Lesson quiz: Present students with sets of data. Have them tell the most suitable graph to use to display the data. • Have students create a crossword puzzle using names of graphs and their specific characteristics.
2. Collect, organize, graph, and analyze a set of data as the answer to a question or problem (Continued)..	<ul style="list-style-type: none"> • There are many methods for collecting data. In some cases, it will already be recorded, and you merely need to "find" it. In other cases, you will need to construct a test, survey or other instrument to obtain the information you need. • A survey is a question, or questions, used to gather information called data. • A graph has a title and is always labeled. 	<ul style="list-style-type: none"> • Have students work in groups: <ol style="list-style-type: none"> a. Survey “n” number of students with the focus question: Which of the following summer activities do you prefer? swimming, camping, watching T.V, bike riding or traveling b. Graph the data c. Create questions and answer keys d. Exchange completed projects among peers to provide answers for other assignments. 	<ul style="list-style-type: none"> • Math Advantage Bk. 6 pg.C52 	<ul style="list-style-type: none"> • Students will create a display of their graphs. • Have students create a booklet to outline procedure and outcomes of data.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 6

Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
2. Collect, organize, graph, and analyze a set of data as the answer to a question or problem.		<ul style="list-style-type: none"> Have students create a picture puzzle. The pieces will be used to sequence the events of collecting, organizing, graphing, and analyzing data. 		
3. Interpret circle graphs	<ul style="list-style-type: none"> A circle graph is a graph that shows how parts of the data are related to the whole and to each other. Each part is known as a sector. 	<ul style="list-style-type: none"> Guide students to create circle graphs to show: <ol style="list-style-type: none"> their study schedule how they spend a school day. *Students will create questions and answers for the graphs Have students create a bulletin board display. 	<ul style="list-style-type: none"> Harcourt Math Bk.5 pgs. 113, 245 enVisionMath Bk. 5. pgs.446-449 	<ul style="list-style-type: none"> Write in mathematics journals explaining what circle graphs are and how to interpret them. Lesson quiz: Have students complete test items by answering questions based on circle graphs.
4. Solve problems involving mean, median, mode and range	<ul style="list-style-type: none"> Mean is the sum of all the numbers in a set of data divided by the number of addends. Example: $95 + 87 + 84 + 61 + 83 = 430$ $430 \div 5 = 86$ Median is the middle number in a set of data that are arranged in order. Mode is the number or numbers that occur most often in a set of data. There may be one mode, more than one mode, or no mode Range is the difference between the greatest and least number in a set of data. 	<ul style="list-style-type: none"> Guide students to <ol style="list-style-type: none"> use “n” number of persons to measure the following: <ul style="list-style-type: none"> Heights Weights Find the mean, median, mode and range of the heights and weights of students in the class. Create a chant/rap to assist with finding the mean, median, mode and range. 	<ul style="list-style-type: none"> Harcourt Math Bk. 5 pgs.102, 106, 108 Math Advantage Bk. 6 pg. 258, C54 Bright Sparks Bk. 6 pg. 60 www.promethianboard.com 	<ul style="list-style-type: none"> Lesson quiz: Students will solve problems to identify mean, median, mode, and range. Create a chart to display mean, median, mode, and range of a specific set of data.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: STATISTICS AND PROBABILITY
GRADE: 6

Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
5. Verify the probability of a particular outcome and write it as a fraction or ratio.	<ul style="list-style-type: none"> • Probability is the chance that an event will happen. It compares the number of favourable outcomes and the number of possible outcomes. • Probability = $\frac{\text{number of favourable outcomes}}{\text{total number of possible outcomes}}$ of an event <p>Example: Fraction $\frac{2}{3}$; ratio = 2 to 3 or 2:3</p> <p>Reuben writes each letter of his name on a separate piece of paper and puts them in a bag. He chooses one piece of paper from the bag without looking. What is the probability that Reuben will choose the letter B?</p> <p>There is 1 favourable outcome out of 6 possible outcomes, R E U B E N. The outcomes are equally likely. The probability of choosing the letter B is $\frac{1}{6}$ or 1 to 6 or 1:6</p> <ul style="list-style-type: none"> • A tree diagram is a diagram used to organize outcomes of an experiment. 	<ul style="list-style-type: none"> • Guide students to create spinners with topics that interest them. E.g. Name brand shoes, favorite singers, words, restaurant names. • Allow students to: <ul style="list-style-type: none"> a. create and solve questions/answer keys b. exchange problems among peers and provide answers • Have students compete under timed conditions to write probability outcomes as fractions and ratios. 	<ul style="list-style-type: none"> • Harcourt Math Bk. 5 pg. • Math Advantage Bk. 6 pg. 272 • enVisionMath Bk. 5. pgs.488-489 	<ul style="list-style-type: none"> • Students create questions, conduct experiments, and record answers. • Create picture booklets to show outcomes.
6. Use probability to make reasonable predictions. - tells what could happen because outcomes are likely to occur.	<ul style="list-style-type: none"> • A reasonable prediction is one that indicates what could happen based on specific conditions. • Using probability to make reasonable predictions must include all possible outcomes. 	<ul style="list-style-type: none"> • Lead students to create a Silly Billy booklet that answers questions such as the following: Rashad says to Billy “The probability of rolling a 6 with a die is 1 to 6. 	<ul style="list-style-type: none"> • Harcourt Math 5 pg.578 	<ul style="list-style-type: none"> • Write an advice column about playing Silly Billy. • Have students provide reports to explain why predictions are logical or illogical.

SCOPE OF WORK
PRIMARY SCHOOL MATHEMATICS
STRAND: PROBABILITY AND STATISTICS
GRADE: 6

Sub-Goal 6: Collect, organize; and analyze data using statistical methods: predict results; and interpret uncertainty using concepts of probability

OBJECTIVE	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT
6. Use probability to make reasonable predictions (Continued). - tells what could happen because outcomes are likely to occur.		<ul style="list-style-type: none"> • Roll the die. Whenever a 6 comes up, you win and Rashad will pay you \$5.00. Whenever a 6 doesn't come up, I win and you pay me \$5.00." Billy accepts the challenge. What do you think will happen and why? • Guide students to create a set of task cards with probability scenarios and at least two predictions of outcomes- one reasonable and the other unreasonable. 		
7. Describe a fair game	<ul style="list-style-type: none"> • A fair game is one in which all players have an equal chance to win. 	<ul style="list-style-type: none"> • Allow students to: <ol style="list-style-type: none"> a. play games and keep scores each time a player wins. At the end of 'n' games, students should justify why the game is fair/unfair. b. create a unique "fair game" 	<ul style="list-style-type: none"> • enVisionMath Bk. 5. pgs.492 & 493 	<ul style="list-style-type: none"> • Create a bookmark that outlines criteria for fair games. • Complete a paragraph to justify why their game is fair.

Problems of the Day

Primary School Mathematics

Grade 4

PROBLEM OF THE DAY: GRADE 4

Instructions: The following can be read aloud or written and discussed with students.

1. How many 3-digit numbers can you make using the following digits: 3 6 8 5

Answer: 24 numbers can be formed.

2. How many 3- digit numbers can you make using the following digits: 7 4 6

Answer: 6 numbers can be formed.

3. Burger King sold 1,090,876 hamburgers. Wendy's sold 10,000 more than that. How many hamburgers did Wendy's sell?

Answer: 1 100 876

4. Mc Donald's sold 2,080,529 orders of French fries. Kentucky Fried sold 10,000 less than that. How many orders of fries did Kentucky Fried sell?

Answer: 2 070 529

5. Scott, Marcy, and Pedro set up chairs for the class play. Scott sets up 30 chairs. Marcy sets up 29 chairs. Pedro sets up 28 chairs. About 100 parents are expected. Do they have enough chairs? Explain.

Answer: No. Explanations will vary.

6. Earth is about 8 000 miles in diameter. The sun is about 93 000 000 miles away from Earth. About how many Earth's set side-by-side, would it take to equal the distance from Earth to the sun?

Answer: 11 625

7. Jesslyn has 2 bills with Sir Cecil Wallace Whitfield's picture, 5 coins with the starfish, 6 bills with the Royal Bahamas Police Force Band, 2 coins with the sailboat and 3 coins with the pineapple. How much money does Jesslyn have?

8. Which would you rather have and why: \$34.12 rounded to the nearest \$20.00, or \$34.12 rounded to the nearest \$10.00?

Answer: \$34.12 to the nearest 10 because it is more.

9. Jill wants to keep watermelons for the class picnic cold. How many watermelons can Jill fit in her refrigerator? Explain how you arrived at your answer.

Answer: Answers will vary. Students will need to make assumptions about size of watermelon and the size of refrigerator? And estimate.

10. This table shows bowling averages for a three- month period.

	Marie	John	Paul
January	187	151	139
February	198	163	147
March	211	182	161

a. If the bowler's averages were rounded to the nearest hundred, during which month could each bowler claim a 200 average?

Answer: March

11. Five addition facts have a sum of 4. Six addition facts have the sum of 5. How many addition facts have a sum of 6? List them.

12. How many raindrops make a puddle? Explain your strategy.

Answer: Answers will vary.

13. How many corn flakes can fit in a bowl? Explain your strategy.

Answer: Accept reasonable explanations.

14. In the game “Tic-Tac-Toe,” how many squares are on the Board? (The answer is not 9.)

Answer: 14

15. The fire station is 1 kilometer away from Princess Margaret Hospital. The police station is 1,000 meters from Princess Margaret Hospital. Which station is closer to Princess Margaret Hospital? How do you know?

Answer: They are equidistant. 1000 meters= 1 kilometer

16. The average field mouse is about 11cm long, not counting its tail. The average cat is about 45cm long, not counting its tail. What is the average of both animals?

Answer: 28 cm

17. Dairy Maid has half dozen flavors of ice cream. How many flavors are there? Show the different combinations of double scoop cones Dairy Maid can sell.

Answer: 6 flavors. Let students draw the combinations. Discuss whether 2 scoops of the same flavors count as a combination.

18. Estimate how many Cheerios in a box?

Teacher’s note: Change this to M & M’s in bag, raisins in a box, etc. for more Problems of the Day.

Answer: Accept all reasonable solutions and strategies.

19. Two sticks are each 9cm long. They are taped together to form a longer stick that is 12cm long. How long is the overlap?

Answer: 6 inches

20. A fly and a frog were hopping up a set of 12 steps. The fly landed on every 2nd step, and the frog landed on every 3rd step. Draw a diagram to find out on which steps they both landed. Start by drawing a staircase with 12 steps, or a ladder with 12 rungs.

Answer: Check all drawings. 6th and 12th steps.

21. In 1990, Jerome and his family visited the Pompey Museum in a building built 2 centuries earlier. About when was it built? If you need to, look up the word 'century' in the dictionary.

Answer: 1790

22. The Super Frosty at Wendy's costs \$12.45. Angie has \$8.50, Scott has \$9.25, and Devon has \$7.53. Do the three have enough money to share 2 Super Frostys?

Answer: Yes.

23. Twin Brothers sold 348 orders of Fish snacks and 400 orders of conch snacks. It also sold 598 chicken snacks. How many more orders of the fish and conch snacks than chicken snacks were sold?

Answer: 150

24. Chico used five squares to form a block letter T. If each square is 2cm long on a side, find the perimeter of the entire letter.

Answer: 24cm

25. Maria worked on her insect report for several days. On Monday she worked from 7:25 to 8:45. On Tuesday she worked from 4:20 to 5:05. On Wednesday she worked from 3:30 to 4:45 and from 7:20 to 8:00. How much time did she spend on her report in all?

Answer: 4hrs

26. The library checked out 114 books on Monday. 142 books on Tuesday and 129 books on Wednesday. The librarian reported to the principal that 405 books had been checked out in three days. Use estimation to decide if her report is reasonable.

Answer: Accept reasonable explanations

27. There were 2 dozen Chocolate cakes entered in the cake contest. There were twice as many Rum cakes and half as many Fruit Cakes. 15 Carrot Cakes and 1 Yellow Cake were also entered in the contest. How many cakes did the judges have to taste?

Answer: 100

28. In a recent local election, 8 254 people voted. 4 198 of them voted for one of the major 3 candidates. A fourth candidate got exactly 300 votes. About how many people voted for the fifth candidate? Can you tell who won?

Answer: 3 756. No.

29. Sarah has estimated that there are 20 weeks until the end of school. What month is it now?

Answer: January or February depending on when the last day of school is scheduled this year.

30. Tell which information is extra, then solve the problem: A chef can cook 8 hamburgers in 10 minutes. It takes him 15 minutes to cook 5 hotdogs. How many hamburgers can he cook in 20 minutes?

Answer: Extra information is about the hotdogs. 16 hamburgers.

31. Meecka found a treasure map with a graph but the treasure was not marked on the map. Instead there was a note saying: “(7, 9) is too far north; (1, 2) is too far west; (4, 5) is too far south; (6, 8) is too far east. It is north of (2, 6); it is east of (4, 9); and (3, 8) is too far north.” Can you name the location of the treasure for Meecka?

Answer: Have the students draw a coordinate plane to find the answer.

32. Josie’s ruler is 10 centimeters long. She uses it to measure a 3-meter-long piece of string. How many times must she move the ruler along the string?

Answer: 30

33. Pedigree is the only dog food Pierre the poodle will eat. It is sold in cartons that hold 6 servings. If Pierre eats 5 cartons a month, how many servings of Pedigree does he eat in a month?

Answer: 30

34. Sixty-four students and 8 adults went to a track meet. They rode in an Explorer that held the same number of people. If each adult drove an Explorer, how many people traveled in each Explorer? How many of them were students?

Answer: 9 people in each van, 1 adult and 8 students

35. Jenny is reading a local rainfall graph. The total rainfall for the months of April, May and June is 12cm. the total for January through June is 34cm. how much rain fell from January through March?

Answer: 22cm

36. Judy invited 20 friends to her birthday party. Then she went out and bought 20 party flavors. Now she found that 4 people can't come, and that 4 others are each bringing a cousin. Does she still have enough party flavors? Explain.

Answer: Yes.

37. Each day Mr. Franks makes 5 sandwiches for his family's lunch. Use 3 factors in a multiplication number sentence to show how many slices of bread he would use in 3 days. Solve the number sentence.

Answer: $5 \times 3 \times 2 = 30$

38. Decide which operation to use to solve the problem, tell why, and solve the problem:

Zach started a collection of miniature cars from all over The Bahamas. He started with 6 Androsian cars. Then his pen pals in Exuma sent him 5 more cars. How many more does he need to have a total of 20 cars? How many cars does he have in his collection now?

Answer: Explanations will vary.

39. Find the secret number.

It is even. It is a multiple of 4. It is a factor of 32. It is greater than 4 but less than 10. What number is it?

Answer: 8

40. Last year, 4,000 people visited Grand Bahama in every month that had a "r" in it. Write a multiplication sentence to show how many visitors came to Grand Bahama in those months last year, and then find the answer.

Answer: $4\ 000 \times 8 = 32\ 000$

41. There are some Hummers and some tricycles in a field. All together there are 55 wheels. How many Hummers and how many tricycles are there?

Answer: There are several solutions to this problem. Accept all that fit the conditions of the problem.

42. The carnival came to town for five shows. The first four shows were sold out, but only 707 people went to the last show. If the big tent had 965 seats, how many people saw the Carnival?

Answer: 4 567

43. The Pirate's of Nassau Museum gift shop sells a model of a pirate ship for \$25.79. If 8 models were sold last week, how much money was collected? If the gift shop paid the model factory \$15.79 for each model, how much profit did the gift shop make on the 8 sales?

Answer: \$206.32; \$80.00

44. Ms. Smith makes straw dolls of children, and she has received 50 orders for gifts. She is trying to get them finished in a month. After 2 days she has finished 3 dolls. After 4 days she has finished 3 dolls. After 4 days she has finished 6 dolls, and after 6 days she has finished 9. How many will she have done after 10 days? Make a table that shows the pattern and the answer. Will she finish the 50 in a month of 30 days?

Answer: 15 days; check the tables; No.

45. Draw a 3-by-3 square box around any 9 dates on a calendar. Find the sum of 3 numbers in a line. The line may be a horizontal, vertical or diagonal. Then multiply the middle number of your line by 3. What do you notice about the sum and the product?

Answer: They are always equal.

46. Ruby pays \$0.75 a day for lunch in the school cafeteria. How much does she spend on lunch each school week? How much does she spend in 8 school weeks?

Answer: Accept all reasonable responses.

47. Denise picked 2 dozen mangoes. If she uses 5 mangoes to bake a batch of mango cupcakes, how many batches can she make? How many mangoes, if any, will she have left?

Answer: 4; 4 left over

48. A Junior High Softball team plays 162 games during a regular season. A season lasts about 6 months. Use compatible numbers to estimate how many games a team plays each month. Explain whether the estimate is greater or less than the exact answer.

Answer: Accept all reasonable solutions

49. Each of the 6 cars of the Car Racing at the Sports Center can hold 8 riders. How many riders can the Car Racing hold at once? If 216 people buy tickets to ride the Car Racing, how many cars could they fill?

Answer: 48; 27

50. The Bamboo Shack orders juice in 2-gallon jugs. One gallon is equal to 128 ounces. Last week they used up 3 jugs of apple juice. If a serving of apple juice is 6 ounces, how many servings were sold from the total quantity of apple juice?

Answer: 64

51. To solve this problem, draw a picture that shows the chickens in the right order, and then label the chickens. Five chickens are flapping in a circle. Alexander is wearing a hat. Alexander is between Barraterre and Curtis. Curtis is followed by Forest. One chicken is named Georgetown.

Answer: check pictures with information in the story.

52. In football, a touchdown is worth 6 points. A safety is worth 2 points. The Bahamas Blue Marlin scored 36 points on some touchdowns and at least 1 but fewer than 6 safeties. What combination of touchdowns and safeties did the team score? Prove that your answer works.

Answer: 5 touchdowns, 3 safety

53. Issac practices the goatskin drums every day. Last week he spent a total of 224 minutes practicing and he played for the same amount of time each day. Did he practice more or less than a half hour each day? Explain your answer.

Answer: More. Accept reasonable explanations.

54. Suzy made 4 round-trips on the jitney last weekend to visit her grandfather in Doctor's Hospital. She spent \$5.20 for her total jitney fare. Explain how you could find the cost of a one-way jitney fare?

Answer: Accept reasonable explanations.

55. Use a calendar showing a complete month. Find the median of the dates in the first full week, from Sunday to Saturday. Then find the average of the dates in the next full week. What do you notice?

Answer: The median and mean of a week's dates are equal.

56. I am a capital letter made of 3 line segments. Two of my lines are equal and parallel. My third segment is shorter and intersects both parallel line segments. What letter am I?

Answer: H

57. An architect is planning a new house. She wants the front of the house to have a vertical line of symmetry. The front of the house must have one door and five windows. The shapes have yet to be chosen. Sketch how you think the front of the house should look.

Answer: Accept all drawings that fit the criteria in the problem.

58. A track field is 100 meters long. A crayon is 1 cm long. How many crayons fit end-to-end down the field? If crayons come 8 to a box, how many boxes would you need to try this experiment?

Answer: Let students use calculators; 910 crayons; 114 boxes.

59. Paul notices at least five different geometric figures in the playground at school. What items can you find in your school yard that are in the shape of 5 different geometric figures?

Answer: Answers will vary

60. Use the clues to draw a simple map of 4 straight streets in Danny's neighborhood. Danny lives on Meadow Street, which runs east to west. It is parallel to Meeting Street. Augusta Street is perpendicular to both streets. Dumping Ground Corner intersects Meadow Street and Augusta Street, but it does not meet Poinciana Drive.

Answer: Check the maps

61. Nancy, Jane and Brent have a total of 80 marbles in their collections. The total number of marbles that Nancy and Brent have equals the number that Jane has. Jane has 4 times as many as Brent. How many marbles does each person have?

Answer: Nancy 30; Jane 40; Brent 10

62. Donna, Dawn and Doug live with their parents, Denise and Dwayne Davis and their dog, Digit. What fraction are females? What fractions are adults? What fractions are children?

Answer: Answers depend on how students classify Digit.

63. Fanny loves freshly squeezed dilly juice. She has learned that it takes the juice of 15 dilly halves to serve the 3 members of her family. How many dillies is this?

Answer: $7\frac{1}{2}$

64. Quinn talked on the phone to his best friend for $\frac{4}{6}$ hour. Next, he and his grandfather spoke for $\frac{1}{6}$ hour. Then he chatted with his sister for another $\frac{1}{6}$ hour. How many minutes did he spend on the phone?

Answer: 60 minutes or 1 hour

65. A bed frame is 4m long and 3m wide. Each side of the bed is 1 ft. shorter than the frame. The springs that connect the bed to the frame fill that space. What is the perimeter of the frame? What are the perimeter and area of the bed? Can you find the area of the frame? Explain

Answer: 14cm (perimeter); 12cm^2 (area).

66. A D. J. Counselor's concert lasted 48 minutes. Write the length of the concert as a fraction of an hour. Then rewrite the fraction in simplest form.

Answer: $48/60$; $4/5$

67. Alan needs 5 pounds of flour for a pottery project. He finds three partially filled bags of flour. They contain $2\frac{1}{4}$ pound and $1\frac{3}{4}$ pounds. Does Alan have enough flour for the project?

Answer: No

68. Gayle did warm-up stretches for $\frac{2}{12}$ hour. Then she did sit-ups for $\frac{1}{12}$ hour and jogged in place for $\frac{3}{12}$ hour. For how many minutes did Gayle exercise?

Answer: 30 minutes

69. One morning 740 flamingoes landed on Lake Cunningham to feed. That afternoon 67 of the flamingoes flew away, but another 428 flamingoes arrived. How many flamingoes were now on Lake Cunningham?

Answer: 1,101

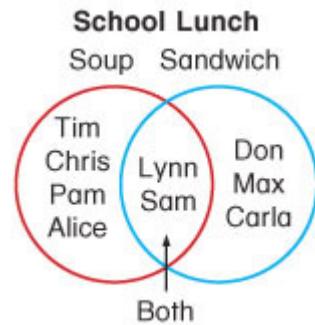
70. Using 4 fours and any combination of operations, write number sentences that equal 1,2,3,4 and 5.

Answer: Answers will vary. One possible answer is $[(4 \times 4) \div 4] \div 4 = 1$

71. The new copy machine in the principal's office can copy a 100-page report in 2 minutes. How long will it take to copy 0.5 of the report?

Answer: 1 minute

72. **Anika** made the Venn diagram below to show what some children ate for lunch at a party. Did more children eat only soup or only sandwiches?



Answer: Soup

73. Draw a figure that has twice as many vertices as a triangle.

74. How many ninths equal $\frac{1}{3}$?

Answer: 3

75. Deborah and her friends are painting. They each painted $\frac{1}{8}$ of the painting. How many people make the painting altogether?

76. There are 7 marbles in a bag. Three of the marbles are blue, two are orange, and the rest are red. What is the ratio of red marbles?

- a. 3 out of 5 b. 2 out of 5 c. 2 out of 7 d. 3 out of 7 (Answer)

77. Wendell and Terry both rounded the number 3.4682. Wendell says that he rounded the number up. Terry says that he rounded the number down. To what place value might the number have been rounded by Wendell? By Terry? Explain.

78. If 5 times the first number plus three times the second number equals 47, and 10 times the first number minus 4 times the second number equals 54, what are the numbers?

Answer: 7; 4

79. If the ratio of Howard Stern fans to non-fans in a group is 4 to 1, what fraction of the people in the group are non-fans?

Answer: $\frac{1}{5}$

80. Jenny wanted to purchase 2 dozen pencils and a pen. Those items cost \$8.45 and she did not have enough money. So she decided to purchase 8 fewer pencils and paid \$6.05. How much was a pen?

81. Bob, Keith, and Toi each have some money. The sum of Bob's and Keith's money is \$18.00. The sum of Keith's and Toi's money is \$21.00. The sum of Bob's and Toi's money is \$23.00. How much money does each person have?

Answer: Bob = \$10.00; Keith = \$8.00; Toi = \$13.00

82. What number comes next in the following sequence? 1, 1, 2, 3, 5, 8, ___?___

Answer: 12, 17

83. Gary scored 7 foul shots out of every 10 attempts in a basketball game. How many foul shots did Gary miss in 20 attempts?

Answer: 14

84. Use both of these symbols to make the number sentence true: +, —.

$$2 \circ 4 \circ 2 \circ 3 \circ 5 = 10$$

Answer: +, +, -, +

85. Peter was running a race that was a distance of 1 kilometer. Rhonda outran him when Peter was only 1 meter away from the finish line. How far had Peter run when Rhonda won the race?

86. The sum of two numbers is 10. The product of the two numbers is 24. What are the numbers?

Answers: 6 and 4

87. The boys are playing a "blindfold" number game. Sam put his hand in a box and picked 3 successive numbers with a sum of 27. What numbers did Sam pick?

Answer: 8, 9, 10

88. Maria and Vanria like to read. Maria read 3 hours a day for 22 days. Vanria read 4 hours a day for 18 days. Who read for more hours?

Answer: Vanria

89. Patsy's grandmother lives 36 km from Patsy's home. Patsy goes two times a week with her family to visit her grandmother. How many km do they travel each week going to her grandmother's home and back?

Answer: 144 km

90. CeRon's bedtime was usually 9:30 p.m. The night he went to the basketball game, he was one hour and fifteen minutes late going to bed. What time did he go to bed? Write the answer two ways.

Answer: 10:45 p.m. or 15 (quarter) minutes to 11

91. Jermicia, Donald, John, and Simone are waiting in line to see a movie. Simone is between Jermicia and Donald. John is last in line. Jermicia is not first in line. John is next to Jermicia. Donald is not second in line. In what order are they standing?

92. There are 16 softball team members and two coaches in the dugout. If nine players go onto the field, how many people are still in the dugout?

Answer: 9

93. It takes Betsy 25 minutes to walk home. She leaves school at 3:15 p.m. What time does she get home?

Answer: 3:40 p.m.

94. Jim drove 768 miles of a 1200 miles journey. How many more miles does he need to drive to finish his journey?

Answer: 432 miles

95. Each of the four shapes below contains one of the numbers 3, 4, 6, or 8. The number inside each shape does *not* match the number of its sides. The number in the circle is odd. The number inside the triangle is the greatest. Which shapes contain which numbers?



Answer: Circle 3, triangle 8

96. Jim built pens for his dogs. If he puts 1 dog in each pen, he will have 2 dogs left over. If he puts 2 dogs in each pen, he will have 1 empty pen. How many dogs and pens does Jim have?

97. What single digit number can you multiply by 4, subtract 3, divide by 5, and add 2 to arrive at the same number that you started with?

Answer: 7

98. The sum of the digits in the month, day, and year for Steve's birthday is 26. If he was born in 1990, in what months could he not have been born?

99. Ellen works 5 days a week for \$9 an hour. How much does she earn in a week?

Answer: \$45.00

100. Mrs. Johnson has 24 students in her fifth grade class. For every 5 girls in the class there are 3 boys. How many boys are in the class?

Answer: 9

Problems of the Day

Primary School Mathematics

Grade 5

PROBLEM OF THE DAY: GRADE 5

Instructions: The following can be read aloud or written and discussed with students

1. Kenneth and Jan live on a straight road exactly 5 miles apart. One day, Kenneth rides his bike 3 miles toward Jan's house. At the same time, Jan rides her bike 1 mile toward Kenneth's house. They are now exactly 4 miles apart. What's wrong with the last statement?

Answer: They will be 1 mile apart. Draw a picture to help.

2. Cars are lined up in this pattern: black, black, red, black, black, red. If this pattern continues, what will be the color of the thirty-fourth car? How did you arrive at your answer?

Answer: Black. Strategies will vary

3. The range of four numbers is 12. Three of the numbers are 28, 35, and 37. What is the fourth number?

Answer: 25 or 40

4. Jason used 6 rolls of film to take 120 photos of animals at the Ardastra Garden. Some rolls of film had 12 exposures on each roll; others had 24 exposures. If all of the film were used, how many rolls of each kind of film did Jason use?

Answer: 2 rolls of 12 exposures; 4 rolls of 24 exposures

5. Jeannie was collecting money to help clean up the Humane Society animal shelter. She collected \$165 and had 18 bills. What combination of bills might she have collected?

Answer: Answers may vary. One possible solution is 2-twenties, 9-tens & 7-fives.

6. Matthew is 8 years old, and Joanna is 6 years younger. How old will Matthew be when he is twice as old as Joanna?

Answer: Matthew will be 12.

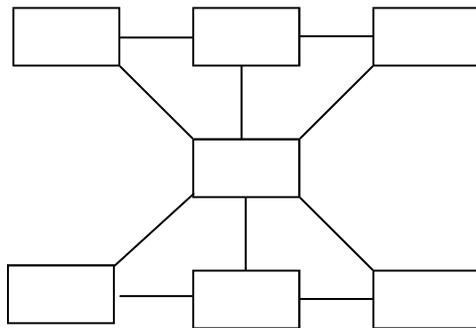
7. A goat's owner receives \$1 000 for appearing on ZNS-TV and \$500 for starring in commercials. In one month the goat performed just seven times and earned \$4,500! Exactly how many times was the goat on ZNS? And, how many commercials was the goat in during the month?

Answer: 2 times on ZNS; 5 times in commercials.

8. A grade five class held a catching crab contest. Admission prices were \$0.50 for students and \$1.00 for adults. After the first half-hour, the class had \$20 in the cash box. How many students and how many adults might have bought a ticket?

Answer: Accept all answers that equal \$20.00 worth of tickets because there are several correct answers.

9. Place the number 1 through 7 in the boxes so the sum of any three boxes in a straight or diagonal line is 12. Use each number only once.



Answer: 1, 5, 6
4
2, 3, 7

10. The floor in The Poop Deck Restaurant needs new tiles. The floor measures 36 by 42 feet. Tiles that are 1 foot by 1 foot cost \$0.92 each. A box of 500 tiles is \$450. What combination of boxes and single tiles should the restaurant buy to get the lowest cost?

Answer: 3 boxes and 12 single tiles.

11. Forty-eight goldfish were in tanks. Each tank held either six or eight fish. All the tanks were full. How many fish were in each tank?

Answer: Answer will vary.

12. Use the rule below. Choose any three inputs. What are the outputs? Tell what happens when you multiply and divide by the same number. Rule: Input $\times 6 \div 6 =$ output

Answer: The division reverses the multiplication and the input = out put.

13. In each riddle, the answer is one more different whole numbers. Use the clues to find each mystery number.

- a. Clue: I am less than 100.
Clue: The sum of my digits is 4.
Clue: If you divide me by 2, you get an odd number. I am the number_____

Answer: 22

- b. Clue: If multiplied by 2, I become a number greater than 20 and less than 40.
Clue: If multiplied by 6, I end in 8.
Clue: If multiplied by 4, I end In 2. I am the number_____

Answer: 13 or 18

14. Marco wanted to put three 3-foot shelves over his desk. He bought a 9-foot board and had it cut into three equal pieces. Kelly's Lumber Yard charged \$1.50 per foot for the board, and \$0.50 for each cut. Marco received this bill and was upset. He said he was charged too much. What's wrong? Kelly's Lumber Yard

ITEM	COST
9-ft.board	\$13.50
3 cuts at \$0.50 each	1.50
Total	\$15.00

Answer: He only needed 2 cuts to get 3 pieces.

15. It took the Millers 20 minutes to drive from the villa in Eleuthera to the beach. They stayed on the beach for 2 hours. They spent another 20 minutes driving back to the villa. They arrived back at 4:40pm. What time did they leave for the beach?

Answer: 2:00pm

16. The Rolles and their 3 children bought postcards to send to their friends and relatives from Eleuthera. Mr. and Mrs. Rolle sent 8 postcards. The children sent 2 postcards each. They have 4 postcards left. How many postcards did they buy?

Answer: 18 postcards

17. Mr. and Mrs. Johnson and their three children visited a straw market. They spent \$15.00 on souvenirs, \$25.75 for lunch and \$8.00 on the adult coconut water. If they spent a total of \$56.25 at the straw market, what did they spend on the children's strawberry daiquiri?

Answer: \$7.50 (\$2.50 per child)

18. While in Eleuthera, Mr. Rolle filled his empty gas tank with 20 gallons of gas. He drove a total of 250 miles and then bought 10 gallons of gas to fill his tank. How many miles per gallon does he get?

Answer: 25 mpg

19. In Acklins, a grade five class of 25 students collected bottles to turn in for a \$0.05 deposit on each. If they got \$17.50, what is the average number of bottles each student collected?

Answer: 14 bottles

20. How many edges does a rectangular prism have?

- a. 12
- b. 8
- c. 6

Answer: 12

21. Mrs. Smith lives in Abaco and is planning a 500-mile trip. Her car gets 29 miles per gallon. Can she make the trip on 17 gallons of gas? Explain.

Answer: No, she will run out of gas at 493 miles.

22. Craig bought some crushed ice for \$1.75. Then he spent twice as much on snacks. If Craig had \$5.62 left, how much money did he have before buying the ice and snacks?

Answer: \$10.87

23. Lillymae leaves the playground and walks 120 metres west. Then she walks 40 metres north. After that, she walks 50 metres east and then 40 metres south. Where is she now?

Answer: 70 metres west of where she started.

24. The caterer suggests ordering twice as many paper napkins as the number of guests expected. The napkins come in packs of 100, 50 and 25. Based on the suggestion, how many napkins will be needed for 172 guests? What combination of packs should be ordered?

Answer: 344 napkins. Accept any reasonable combination.

25. When Keisha divided 1 954 by 19, she got an incorrect answer of 12 R16. Why is her answer not reasonable? What is the correct answer? What did Keisha do wrong?

Answer: Accept all reasonable explanations.

26. Bethel Baptist Church plans to serve Christmas dinner to 624 senior citizens. The chefs plan to have one pound of turkey for every 2 guests. If they purchase 24-pound turkeys, how many do they need?

Answer: 13 turkeys

27. You measure an angle to be 60. Your classmate uses the same protractor and thinks the angle is 120. What is wrong with one of the measurements?

Answer: Student is reading the incorrect number used for obtuse angles.

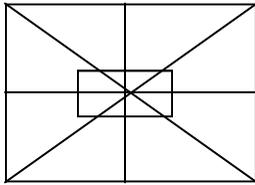
28. Can a triangle be an acute triangle and also a scalene triangle? A right angle triangle and also an isosceles triangle? Why or why not?

Answer: Yes, explanations will vary.

29. A square, a rectangle, a trapezoid and triangle were used in a sketch of a building. The square is above the rectangle and below the triangle. The trapezoid is below the triangle and above the square. What is the order of the figures from top to bottom?

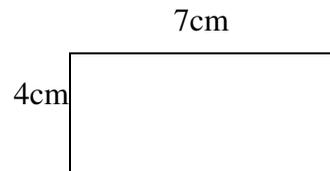
Answer: Rectangle, square, trapezoid, triangle.

30. Look at the drawing below. How many quadrilaterals can you find? How many triangles?



Answer: 26 quadrilaterals; 32 triangles

31. Find the area of the figure.



32. A. Batelco uses capital letters as designs on the tags of their key chains. Which letters of the alphabet are symmetrical? Which letter has the most lines of symmetry?
B. Draw your own symmetrical design. The design could represent a junkanoo shack, a club, a company, or just an interesting pattern. Show the lines of symmetry.

Answer: (A) The letter O has the most lines of symmetry. (B) Designs will vary.

33. The first time the carnival juggler appears, he juggles two balls; the second time, four balls; and the third time, six balls. If this pattern continues, how many balls will he juggle the fifth time?

Answer: 10

34. Square boxes 3 cm on each side are packed in a larger box 24cm on each side. How many small boxes can be packed on the bottom layer of the box?

Answer: 64

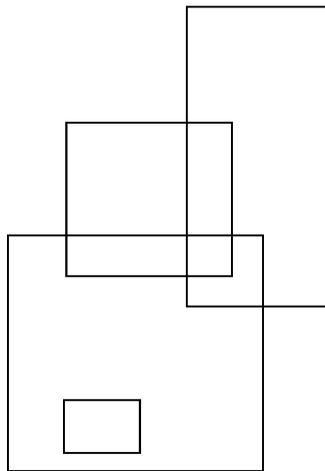
35. Carol wants to put a sea grape leaf with a diameter of 10 inches into the box shown. Will the sea grape leaf fit?

Answer: No. Diameter is longer than the width of the box.

36. You want to stack three circular puzzle boxes in a cardboard carton 10 in. wide, 10 in. long and 4 in. high. Each puzzle box is 8 in. in diameter and 2 in. thick. Will the boxes fit? Tell why or why not.

Answer: No because the carton is only 4 inches high and the 3 puzzle boxes will be six inches high.

37. How many rectangles are there? Hint! Remember that a square is a special rectangle.

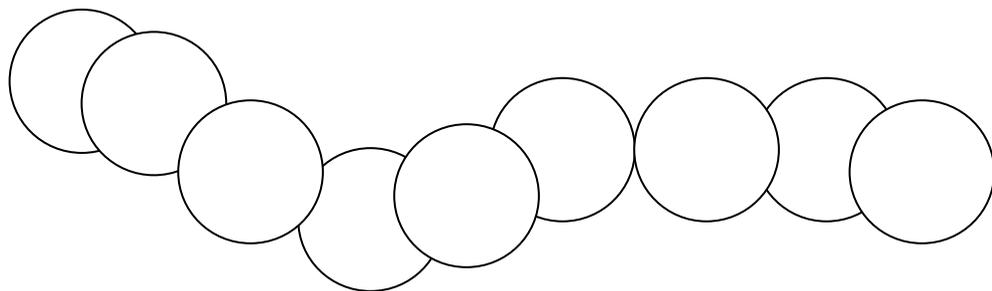


Answer: 13 rectangles

38. The brass section in the Royal Bahamas Police Force Band is arranged in a 5 by 11 rectangular array. Is the total number of brass players a prime or composite number? Explain

Answer: 55-composite

39. Copy the drawings below on a sheet of paper. Place the numbers 1-9 in each of the nine sections so that the sum of the numbers in each pair of circles is 20. Use each number only once.



Answer: Tell what strategy you used

40. Andy deposited one hundred twenty-seven thousand, eight hundred fifty-nine dollars into an account. The account was credited with the amount written in reverse. How much was credited to Andy's account?

Answer: 958 721

41. Outside of Adelaide Primary School there were 7 bicycles and tricycles. There were 18 wheels altogether. How many were bicycles and how many were tricycles?

Answer: 4 tricycles, 3 bicycles

42. It took 10 years for the Nassau Guardian to make 1 million dollars per year. Then the service's yearly earnings increased 10 times every 5 years. What would be their yearly earnings?

43. The brass **section** in the Royal Bahamas Police Force Band is arranged in a 5 by 11 rectangular array. Is the total number of brass players a prime or composite number? Explain

Answer: 55 Composite

44. A survey showed that 91 people watched ZNS from 7 o'clock to 8 o'clock. Also, 109 people watched JCN from 7 o'clock to 8 o'clock. Did more than half of the people surveyed watch ZNS from 7 o'clock to 8 o'clock? How do you know?

Answer: No, because 91 is less than half of 200

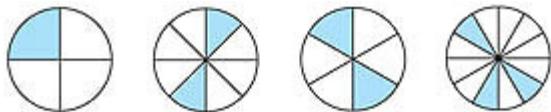
45. Renaldo has \$20. The price of a textbook he needs to buy rounds up to \$20. Does Renaldo have enough money to buy the textbook? Tell why or why not?

Answer: Accept all reasonable answers.

46. In the backyard there were some animals. Some were chickens and some pigs. Altogether there were 15 heads and 44 legs. How many chickens and how many pigs were in the backyard.

Answer: 7 pigs and 8 chickens

47. In which of the figures below is there the greatest probability that a dart landing inside the figure will land on a shaded area?



48. Willie's mother is 5 feet tall and his sister is 4 feet tall. His mother is taller than the hibiscus bush in the yard, but the bush is taller than his sister. Willie estimates that the height of the bush is between 4 feet and 5 feet. Is he correct? Why or why not?

Answer: Accept all reasonable explanations

49. What is 25?

[Teacher's Note: Students should answer this question in as many ways as possible such as: 25 is 5×5 ; 25 is the date of Christmas ; 25 is $20+5$; 25 is one less than 24]

Change the number to create another problem of the day.

50. Mrs. Davis is decorating a room for a party. She ordered a 100 cm length of crepe-paper streamers. Will she have enough streamers to decorate the room? Tell why or why not.

Answer: Accept all reasonable explanations

51. A farmer wanted to cross a lake in a dingy with a sheep, an iguana and a head of cabbage. The dingy could only hold two of them. The farmer could not leave the sheep with the cabbage because he would eat it. He could not leave the iguana with the sheep because the iguana would eat the sheep. How does the farmer get everyone across the lake?

52. What is the greatest possible number of zeros contained in a number that starts with a 5 in the thousands place and ends with a 5 in the thousandths place?

Answer: 5

53. Warren says that he estimated how much money he has in his bank account. His estimate is \$200.00. How much money could Warren have in his account exactly?

Answer: Accept all reasonable amounts that round to \$200.00

54. The Bahamas National Basketball League has 12 teams. If there are 9 players on each team, how many players belong to the league? How would you solve this problem if you did know the basic multiplication fact?

Answer: 108. Accept all reasonable explanations.

55. BEC charges \$.12.00 per Kilowatt-hour (kwh) of use. In one month, the Davis family used about 669 kwh of electricity. The Davis' are trying to estimate the cost of the electricity to record in their household budget. What is the greatest amount that might record as an estimate? How did you arrive at your estimate?

Answer: Accept reasonable explanations.

56. Brittney is making a pictograph to show the number of Family Island students in her high school. She has found that 71 students come from Abaco, 46 from Exuma, 103 from Grand Bahama, 19 from Acklins and 24 from Inagua. What value should she choose for the pictograph symbol? Explain your answer.

Answer: accept all reasonable explanations.

57. Aaron's parents promised that he could go to Adventure Learning Centre if his math average was at least 85. Aaron got these scores on math tests: 62, 81, 100 and 87. What score does Aaron need on his next math test to have an 85 average?

Answer: 100

58. Mrs. Ingraham has a set of wooden boxes that fit inside one another. The width of the smallest box is 2 cm. The width of the next box is 5 cm. The fourth box is 9 cm wide. What is the width of the fifth box? Describe the pattern. Tell how you used the pattern to solve the problem.

Answer: 17

59. Marcia bought some presents for Jill, Calvin and Sarah. She gave 4 to Jill and twice as many to Calvin. She gave the other half of her presents to Sarah. How many presents did she buy?

Answer: 24

60. Tracey bought 6 model planes at Kelly's. Each plane cost \$3.90. She gave the salesperson \$18.54. The salesperson told Tracey that she will owed \$4.86. What did Tracey do wrong?

Answer: She switched the 9 and 0 before she multiplied.

61. A recipe calls for 8 cups of dilly juice, 4 cups of guinep juice and 12 cups of pineapple juice to make a fruit punch. How many cups of dilly juice and pineapple juice should Evan use if he has only 1 cup of guinep juice?

Answer: Dilly Juice = 2 Pineapple Juice = 3

62. I am a closed-plane figure. I have straight sides. I do not have any right angles. None of my sides are the same length. I have fewer sides than a quadrilateral. What am I?

Answer: Scalene triangle

63. We are three numbers. Our least common multiple is 30. Our sum is 14. Who are we?

Answer: 3, 5, 6

64. Max weighs $12\frac{1}{2}$ pounds more than his little sister. Max's little sister weighs $14\frac{1}{2}$ pounds more than his baby brother. Max's baby brother weighs $18\frac{1}{4}$. How much does Max weigh?

Answer: $45\frac{1}{4}$ pounds

65. Suppose one quarter of an athletic field is devoted to basketball. One half of the basketball section has lower baskets. Make a diagram to find what fraction of the athletic field has lower baskets.

Answer: Check all diagrams

66. Ed is building a picket fence. He needs 3 pickets for $\frac{1}{4}$ of a section of the fence. The whole fence is 4 sections long. Make a diagram to find out how many pickets he needs.

Answer: Check all diagrams

67. Two groups in Ms. Jackson's class have been assigned to decorate the bulletin board. The groups have decided to divide the space diagonally. This creates two right triangles. The board measures 4 ft. high by 12 ft. long. How much space will each group have to decorate?

Answer 24 sq. ft.

68. 300 000 people live in New Providence. If they were standing in a line, holding hands with their arms outstretched about how many kilometers long would this line be?

Answer: Accept all reasonable solutions, not just answers

69. If you drew a dot in every square of a 25 x 40 grid every second for 24 hours a day and 365 days a year, would it take more or less than two years to draw 1 billion charts?

70. Hamblin volunteered to bring cupcakes for the class. His mother made 3 dozen cupcakes. Each of the 21 students ate a cupcake. Write an algebraic equation that shows how many cupcakes are left. Use C as the variable.

71. A student averages 72 on 5 different tests. If the lowest score is dropped, the average rises to 84. What is the lowest score?

Answer: The score removed to change the average from 72 to 84 is 24.

72. How many whole numbers between 100 and 300 contain the digit 3 exactly once?

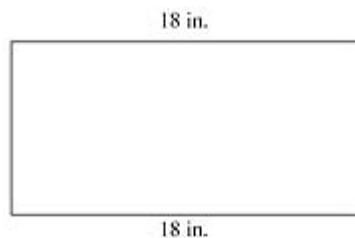
73. If 4 days ago was the day before Monday, what is tomorrow?

Answer: Monday

74. Nick plays for a hockey team. In his first 3 games he scores a total of 8 goals. He scores 1 less goal in the third game than in the second game. If he scored 3 goals in the third game, how many goals did he score in the first game?

Answer: 13

75. In the figure below, the smaller sides of the rectangle are half the length of the longer sides. What is the perimeter of the rectangle?



Answer: 54 ins.

76. The sum of the digits of a 4-digit number is 28. The digits are in order from greatest to least and are not repeated. What is the number?

Answer: 9 874

77. If a number is multiplied by 7, the product is 56. If you double the number and divide the result by 3, what is the remainder?

Answer: 1

78. How many $\frac{1}{8}$ in. pieces can be cut from a length of pipe 16 ft long?

79. What part of a dollar is 2 quarters, 2 dimes, 1 nickel, and 2 pennies?

Answer: $\frac{77}{100}$

80. What three consecutive numbers have a sum of 33?

Answer: 10, 11, 12

81. Norman buys baseball cards at 9 for \$10 and sells them at 6 for \$10. How many cards must he sell to make a profit of \$100?

Answer: 72

82. Find the next set of letters in the pattern: am, BN, co, DP, eq, ?

Answer: FR

83. Five girls ran in a race. Ellen came in behind Lita. Ruth was behind Ellen and Lita. Sally was between Ruth and Ellen. Nelda came in second. Who came in first?

84. Claudia divided \$1 521 between different charities. If she divided the money equally and gave to less than 8 charities, how many charities did Claudia give the money to?
How much did she give each charity?

85. If you take a certain number, divide it by 4, add 14, multiply by 3, and subtract 5, the answer is 49. What is the number?

86. The figure below shows how three circles can be placed so that each circle intersects every other circle. Show how you can place four circles so that each circle intersects every other circle.



87. At a toy shop a bell rings every hour and 15 minutes, and a whistle blows every hour and 45 minutes. If the bell and whistle sound together at noon, when will they sound together again? the next time after that?

88. Your class raised some money for a field trip to Spanish Wells. The first week you raised \$9 less than the second week. The third week you raised half as much as the second week. The fourth week you raised \$5 more than the third week. If you raised \$30 the fourth week, how much did you raise the first week?

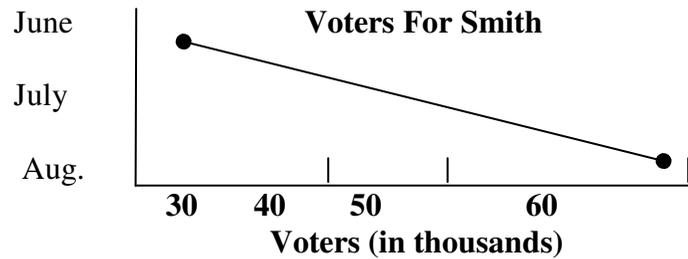
89. The caterer suggests ordering twice as many paper napkins as the number of guests expected. The napkins come in packs of 100, 50, and 25. Based on the suggestion, how many napkins will be needed for 172 guests? What combination of packs should be ordered?

Answer: 344 napkins. Accept any reasonable combination.

90. When Keisha divided 1 954 by 19, she got an incorrect answer of 12 R16. Why is her answer not reasonable? What is the correct answer? What did Keisha do wrong?

Answer: Accept all reasonable explanations.

91. Senator Dion Foukes saw this graph and thought that people did not like him. Is it true?



Answer: Accept all reasonable interpretation

92. How many addition signs should be put between digits of the number 987654321 and where should we put them to get a total of 99?

Answer: a. $9 + 8 + 7 + 65 + 4 + 3 + 2 + 1 = 99$ (7 addition signs) b. $9 + 8 + 7 + 6 + 5 + 43 + 21 = 99$ (6 addition signs)

93. A man has to be at work by 9:00 a.m. and it takes him 15 minutes to get dressed, 20 minutes to eat and 35 minutes to walk to work. What time should he get up?

Answer: 7 hours + 120 minutes - 70 minutes = 7 hours and 50 minutes = 7:50 AM

94. If you begin with a one digit integer, multiply by 3, add 8, divide by 2 and subtract 6, you will get the integer back.

Find the number.

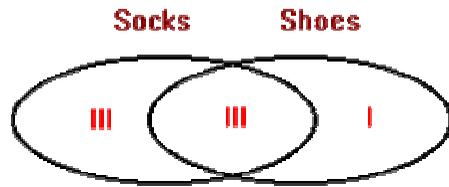
Answer: $[(3 * x + 8) / 2] - 6 = x$

95. Rachel opened her math book and found that the sum of the facing pages was 243. What pages did she open to?

Answer: $243 / 2 = 121.5$

121.5 pages are whole numbers therefore the pages are 121 and 122

96. There are 12 people in a room. 6 people are wearing socks and 4 people are wearing shoes, 3 people are wearing both. How many people are in bare feet?



Answer: $12 - 7 = 5$ people in bare feet

97. An ice cream stand has nine different flavours. A group of children come to the stand and each buys a double scoop cone with two flavours of ice cream. If none of the children choose the same combination of flavours, and every different combination of flavors is chosen, how many children are there?

FLAVOURS

- 1 Vanilla
- 2 Maple
- 3 Chocolate
- 4 Tiger
- 5 Raspberry
- 6 Strawberry
- 7 Coffee
- 8 Moon Mist
- 9 Cherry Vanilla

Answer: $36 = 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1$ There are 36 children.

98. Super Value Food Store has a sale on bananas. If you buy six bananas you get the sale price. If the grocer has 489 bananas, how many bunches of six can he sell at his sale price? In this case how many can be sold at the regular price?

489 divided by 6 equals 81 with a remainder of 3

Answer: He can sell 81 bunches, which would leave him 3 to sell at regular price.

99. If a man can walk 4km in 1 hour and his wife can walk 5km in 1 hour, how many minutes will it take them to meet if they begin walking at the same time at opposite ends of a 12km road, and have agreed to meet at the half way point?



Time for Man	Time for Wife
6km / 4km/hr	6km / 5km/hr
=	=
$3/2 * 60\text{min}$	$6/5 * 60\text{min}$
=	=
90 minutes	72 minutes

Answer: As the woman will get there first, she will have to wait for the man. The time taken to meet will be 90 minutes.

100. A math student interviewed 50 fifth graders. 41 said they like peanut butter sandwiches, 35 liked jam sandwiches and 30 liked both on their sandwiches. How many students liked neither?

Only Jam	Only Peanut Butter	Jam/Peanut Butter
$35 - 30$	$41 - 30$	30
5	11	

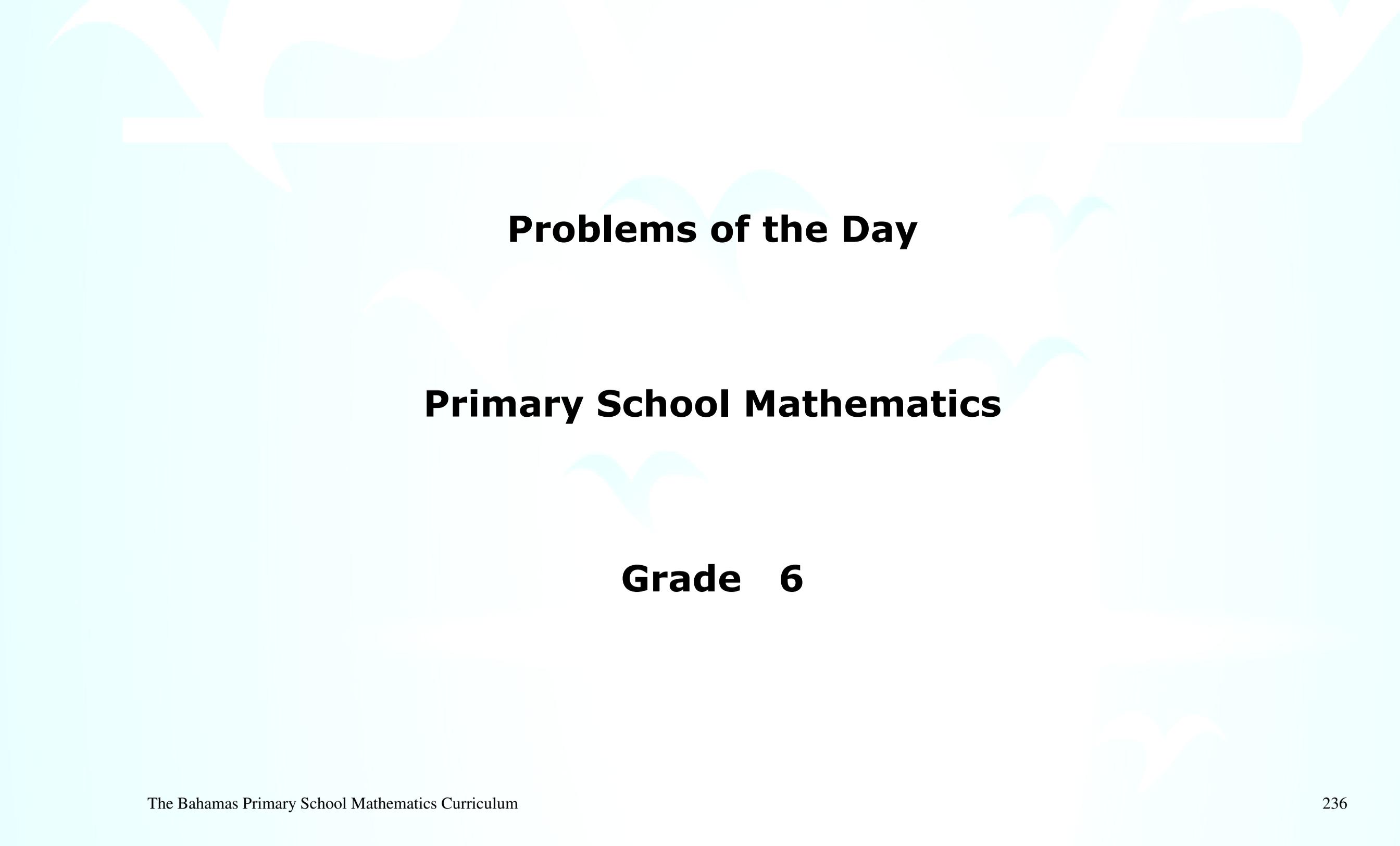
Answer: Number that liked neither = $50 - (5+11+30) = 4$

101. A line of length 4 is divided into nine equal segments. Find a fraction to describe the length AB.

length = 4



Answer: $4 * 3/9 = 12/9 = 4/3 = AB$



Problems of the Day

Primary School Mathematics

Grade 6

PROBLEM OF THE DAY: GRADE 6

Instructions: The following can be read aloud or written and discussed with students.

1. Thomas paid \$7.00 for 8 conch shells. Small shells cost \$0.50 each. Large shells cost \$1.50 each. How many of each size did he buy?

Answer: 5 small and 3 large shells

2. A video titled *The Explorer's Guide to The Bahamas* is 35 minutes longer than *The Explorer's Guide to Mount Alvernia*. The combined running time of the videos is 2 hours 11 minutes. How long is each video?

Answer: Oceans 1 hour 23 min; Rivers, 48 min

3. Karyn paid \$27.00 for two books about hurricanes. The hardcover book cost three times as much as the paperback book. How much did each book cost?

Answer: Paperback, \$6.75; hardcover \$20.25

4. Ryan bought 27 seashells. He bought twice as many pieces of conch shells as he did sand dollars and 3 times as many pieces of star fish as he did conch shells. How many did he buy?

Answer: 3 sand dollars, 6 conch shells, and 18 starfish

5. Josie gave 12 conch shells from her collection to Andy. She then received 15 conch shells from Lisa and gave 24 to Sophia. She now has 62 conch shells. How many conch shells did she have originally?

Answer: 83

6. In the jewellery case, a necklace is displayed to the left of a bracelet and next to a ring. A watch is displayed to the right of the necklace but to the left of the bracelet. List the pieces of jewellery in order, from left to right, as they appear in the case.

Answer: sample answer; ring, necklace, watch, bracelet

7. Lauren received \$0.55 in change after buying 3 large Bahamian postcards at a cost of \$0.75 each and 4 small Bahamian postcards at a cost of \$0.55 each. How much money did she give the clerk?

Answer: \$5.50

8. In a display case, six rocks are arranged according to weight. The lightest rock weighs 3.4 oz, and the next rock weighs 4.5 oz. If the samples increase in weight by the same amount, what are the weights of the remaining rocks in the display?

Answer: 5.6 oz, 7.8 oz, 8.9 oz

9. Look at the problem below (part number and part letters) and use the clues to complete the number.
555-abcd

Clue 1: All digits are different

Clue 2: d is the only odd number

Clue 3: a is the only prime number

Clue 4: $d = 3$

Clue 5: $c < 8$

Clue 6: $c - b = a$

Answer: The number is 555-2469

10. Look at the problem below (part number and part letters) and use the clues to complete the number.

800-jkmn

Clue 1: All digits are different

Clue 2: Only m, and n are prime

Clue 3: Only j, m, and n are odd

Clue 4: $n = 5$

Clue 5: $m < n$

Clue 6: $j \times j = j$

Clue 7: $k \times k = k$

Answer: The number is 800 – 1035

11. One model plane travels around a loop every 5 minutes. The other plane travels on another loop every 4 minutes. If they begin at the same point at the same time, how much time will pass before they meet at that point again?

Answer: 20 minutes

12. One airplane leaves Lynden Pindling International Airport for Cat Island every 15 minutes. Another leaves for Inagua every 20 minutes. If service to both Islands start at 9:15 a.m., when will the airplanes leave the airport again at the same time?

Answer: 10:15 a.m.

13. Suppose the Welcome Center gives a discount coupon to every tenth visitor. Every twelfth visitor gets a free T-shirt. Which will be the first visitor to receive both?

Answer: 60th visitor

14. Lenny, Mark, and Liza are going to jog along 3 different trails at Goodman's Bay. To complete one lap, Lenny takes 6 minutes, Mark takes 12 minutes, and Liza takes 9 minutes. If they start at the same time, how many minutes will it be before they are together again at the starting point?

Answer: 36 minutes

15. Which is the more money: 50% of the sum of \$150 and \$50 or 1.5 times the difference \$50 and \$150?

Answer: 1.5 times the difference between \$50 and \$150

16. Would you rather have 10 000 000 ten-dollar bills or 100,000 thousand-dollar bills? Explain

Answer: Either, both quantities equal \$100 million

17. An accountant wrote 4.527 billion dollars as 4.526 billion dollars. How much was this small mistake worth in dollars? Write your answer in whole numbers.

Answer: 1 000 000

18. How many numbers less than 1,000 are there that contain only the digits 5 or 6 or both 5 and 6? A digit may be used more than once.

Answer: 14

19. There are two lines of people. One person leaves the shorter line. Eight move from the longer to the shorter line. There are now 10 people in each line. How many started in each line?

Answer: the lines had 18 people and 3 people

20. Ian is going away. He has budgeted \$35 each day for food. What is a reasonable amount to budget for total food costs if he goes away for three weeks?

Answer: Sample answer; \$800

21. Paul has invited 221 people to a party. All but 33 who people accepted actually attended. Half of the people who attended brought a friend. How many people came?

Answer: 276

22. A number n increases by 29 when it is rounded to the nearest hundred. N decreases by 1 when rounded to nearest ten. If n is between 400 and 500, what is n ?

Answer: 471

23. An elevator has a weight capacity of 13 adults. When 9 adults and 10 children get on the elevator it is a full capacity. Using 150lb as the average weight of an adult, estimate the average weight of a child.

Answer: 60lb

24. The sum of five decimals is 25.0. Each decimal is 0.1 greater than the one that precedes it on the number line. What are the decimals?

Answer: 4.8, 4.9, 5.0, 5.1, 5.2

25. Subtracting a number from 30 gives the same result as adding the number to 18. What is the number?

Answer: 6

26. Ben follows a pattern of pushes up each week. From Week 1 to Week 6 he does 0, 20, 10, 30, 30 and 40 push ups. When will he be doing 70 and 80 push ups?

Answer: week 12 and week 14

27. Write +, -, or \times in each box:

$$12 \square 6 \square 3 =$$

How many different whole numbers can you express? What are they?

Answer: 9 different numbers

28. What is the greatest number you can make using two different operations and the numbers 25, 40, and 6?

Answer: 1240

29. A number is doubled and the product is increased by 10. Then 3 is subtracted from the result. The final number is 57. What is the number that was doubled?

Answer: 25

30. Bus fare to and from school is \$1.00 each week. Fifteen students decide to save money by walking. If they make the round trip five days a week, estimate how many weeks it will take them to save \$1 500

Answer: about 20 weeks

31. What is the value of DE?

ABC

X DE

EEE

ABCE

ABCE

Answer: 10

32. The product of 12.5 and another decimal number is greater or equal to 1. What is the least value the other decimal can be?

Answer: 0.08

33. The difference between two numbers is 4 less than their sum. One number is one less than the other number. What are the two numbers?

Answer: 2 and 3

34. 4 is how many times as great as the product of 0.2×0.2 ?

Answer: 100

35. Harvey made 24 pounds of tamarind sauce. He wants to fill an equal number of 4 pound jars and 2 pound jars with the tamarind sauce. How many of each size will he need?

Answer: 4 of each size jar

36. A small plant grew 2.5 cm in 100 days. At this rate, about how much will the plant grow in 3 years?

Answer: 27 cm

37. George drove 310 miles on 16 gallons of gas. He has 3 more gallons of gas in his tank. Can he make it 62 miles to the next gas station? Explain using estimation.

Answer: No. He is getting about 20 miles per gallon so $3 \times 20 = 60$

38. Find the dividend, divisor, and quotient for the 8th problem in the series. (Hint: Carry out the divisions to find the pattern)

$2 \div 2$; $36 \div 3$; $492 \div 4$; $6,170 \div 5$; $74,070 \div 6$.

Answer: 111 111, $102 \div 9 = 12$ 345 678

39. Charlene divided a number by a 2-digit divisor and got a quotient of 99 R 98. What is the divisor? What is the dividend?

Answer: 99; 9,899

40. A broken calculator always gives a quotient which is 10 times the real quotient. How would you need to enter this problem to have the calculator show the correct answer? $3793.62 \div 46$

Answer: $379.362 \div 46$ or $3,793.62 \div 460$

41. Each cookie from a 24 –oz box of cookies weighed 0.8 oz. A new box with 10 fewer cookies also weighs 24 oz. How much heavier is a cookie from the new box than a cookie from the first box?

Answer: 0.4 oz heavier

42. If this pattern continues, what will be the letter in the 40th position?

Monday Monday Monday

Answer: d

43. If M is not 0 or 1, find the value of M if $3(M + M) = 3(M \times M)$.

Answer: $M = 2$

44. Tim has 5 more blue ties than half the number of his red ties. He had 3 more yellow ties than one quarter the number of his blue ties. He has 6 red ties. How many ties of each color does he have?

Answer: 6 red, 8 blue, 5 yellow

45. Suppose a person bought an antique chair for \$40, sold it for \$45, bought it again for \$50, and sold it again for \$55. How much profit was earned?

Answer: \$10

46. Guess and check to find the missing numbers in this data set. The mean of the data set is 105. The mode is 108. (100, 103, ?, 108, ?)

Answer: 107, 108

47. You have 1-lb, 10-lb, and 100-lb cowbells. What is the number of cowbells needed to balance a scale with 185-lb on one side of the balance?

Answer: 8 cowbells

48. The sum of four numbers is 40. If a fifth number is added, the mean of the numbers becomes 12. What is the fifth number?

Answer: 20

49. Jan is walking up a down escalator. For every 6 steps she walks up, the escalator moves down 2 steps. If there are 28 steps between floors, how many steps will Jan climb to reach the next floor?

Answer: 42 steps

50. Choose any number. Subtract 3. Multiply by 4. Divide by 2. Add 6. Divide by 2. Try other numbers. What do you find? Why do you think that is?

Answer: the answer is always the number with which you start

51. One April 15, Kara planted a seed that will grow at a rate of 4 cm every 15 days. What will be the height of her plant on July 4?

Answer: greater than 20 cm. but less than 24 cm.

52. Use four 4s and any operations to make the number 2.

Answer: sample answer

$$\frac{(4 \times 4)}{(4 + 4)}$$

53. One half of Karl's father's age added to one third of his mother's age is 31. His father is 38 years old. Karl was born when his mother was 25 years old. How old is Karl?

Answer: 11 years old

54. A fraction is equivalent to $\frac{1}{2}$. Its numerator is a multiple of 5 and its denominator is between 21 and 39. What is the fraction?

Answer: $\frac{15}{30}$

55. Find two equivalent fractions, A and B. A's numerator is 3 times B's numerator. A's denominator is 36. B's numerator is 5.

Answer: A = $\frac{15}{36}$; B = $\frac{5}{12}$

56. The Bahamian Prime Ministers Pindling and Ingraham were elected in the only years between 1789 and 2000 that were divisible by 2, 3, 4, 5, 6, 9, and 10. What are the years? (Hint: Elections occur every 4 years, and the year 2000 is an election year.)

Answer: 1800 and 1980

57. Pat has \$25 to buy a pair of kneepads and a pair of elbow pads. Kneepads cost \$7.59 each. Elbow pads cost \$6.99 each. How much more does she need?

Answer: \$4.16

58. Put these numbers in order from least to greatest.

5, 2, 0.5, 0.5, 0.2

Answer: 0.2, 0.5, 0.5, 2, 5

59. What is the smallest number that is divisible by each of the first three prime numbers?

Answer: 30

60. What's the number? It is a multiple of 5. It is a factor of 50. Its tens digit is 3 less than its one's digit.

Answer: 25

61. Larry has some flamingoes and rabbits. He counts 16 heads and 42 legs in the barnyard. How many of each animal does he have?

Answer: 5 rabbits and 11 flamingoes

62. Clock A rings every 9 min. clock B rings every 12 min. clock C rings every 20 min. All the clocks rang at noon. When is the next time all 3 will ring at the same time?

Answer: 3 p.m.

63. Nobody knows how old Aunt Helen is but she gave a few hints. She had passed $\frac{1}{20}$ of her life before she started school. She spent $\frac{3}{20}$ of her life in school; She worked for $\frac{1}{10}$ of her life before she got married. She was married for $\frac{2}{5}$ of her life. Her husband died after $\frac{7}{10}$ of her life.

From reading Uncle Harry's gravestone you find out that she has been a widow for 24 years. How old is Aunt Helen?

Answer: $(\frac{3}{10}) * ? = 24$ and $24 / (\frac{3}{10}) = 80$. Aunt Helen is 80 years old.

64. An example of five consecutive even numbers is 10, 12, 14, 16, and 18. Find five consecutive even numbers whose sum is 450.

Answer: 86, 88, 90, 92, 94

65. Which of these numbers has the least number of different prime factors? Explain how you know.

360 810 1 000

Answer: 1 000

66. Find the missing denominators so that the sums of these fractions is 1.

$$1/\square + 2/\square + 3/\square + 4/\square = 1$$

Answer: Answers may vary. Sample answer: the denominator of each fraction is 10

67. Ty is ordering pizza for a party. Each person will eat $3/8$ of a pizza. No slices will be left over. What is the least number of pizzas he should order?

Answer: 3 pizzas

68. A and B are mixed numbers. B is greater than A. When you round each to nearest whole number and add them together, the sum of the rounded numbers is 10. Find the numbers.

Answer: sample number: A = $3 \frac{4}{5}$ and B = $5 \frac{3}{4}$

69. Wendy received scores 5, 5.9, 5.7 and 6 from four judges. What score did she receive from a fifth judge if her average score was 5.7?

Answer: 5.9

70. The numerator of each of four fractions is 1. Each denominator is a different number. Name the fractions.

Answer: sample answer: $1/12, 1/6, 1/4, 1/2$

71. Each pair of fractions has a sum of 1. Find the missing denominators.

$$\frac{3}{4} + \frac{3}{\quad} = 1 \quad \frac{4}{5} + \frac{4}{\quad} = 1$$

$$\frac{5}{6} + \frac{5}{\quad} = 1 \quad \frac{6}{7} + \frac{6}{\quad} = 1$$

Answer: 12; 20; 30; 42

72. The sale price of a shirt is the regular price minus $1/5$ of the regular price. What fraction of sale price will be equal to the discount received?

Answer: $1/4$

73. Theo has \$1.00 in five cents and ten cents. He has twice as many five cents as ten cents. How many five cents does he have? How many ten cents?

Answer: 5 ten cents and 10 five cents

74. Find $a + b$. write your answer in simplest form.

$$\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} = a$$

$$\frac{1}{4 \times 5} + \frac{1}{5 \times 6} = b$$

Answer: $5/6$

75. Anne gave $\frac{1}{3}$ of her stamps to Mary, $\frac{1}{5}$ to Lucy, and her 7 remaining stamps to Leah. How many stamps did Anne give away?

Answer: 15 stamps

76. Find the missing members of this sequence.

$4\frac{1}{6}, 2\frac{5}{6}, 4\frac{1}{2}, 6\frac{1}{6}, ? ?$

Answer: $7\frac{5}{6}, 9\frac{1}{2}$

77. Half of 36 students brought some food to school. Half of those who brought food brought some fruit. How many did not bring fruit?

Answer: 27 students

78. Jeff multiplied a fraction by itself to get product P. He then multiplied P by 18 to get a product of 2. What is the fraction?

Answer: $\frac{1}{3}$

79. Alex made two equal groups of pears. He began with a number between 60 and 70 pears. One group was for a pie. He gave away $\frac{3}{8}$ of the other group. How many pears did he begin with?

Answer: 64

80. Of A, B, and C, two numbers are fractions and one is a mixed number. If $A \times B = C > B$, and $C < A$, then which number is the mixed number? Explain.

81. A is a whole number and B is a fraction, where $A \times B = C$ and $A \div B = D$. Rank A, B, C, and D from greatest to smallest. Explain using examples.

Answer: $D > A > C > B$. answer will vary. Check student's examples.

82. The gauge in Ted's tank is one 1/8 Gas cost \$1.50 a gallon. The tank holds 18 gallon. What will it cost Ted to fill the tank?

Answer: \$23.50

83. Angela is cutting shelves from 14-ft board. Each cut takes her 1 1/2 minutes. How many shelves will she make if she spends 9 minutes sawing?

Answer: 7 shelves

84. Jed was on a plane trip. Halfway into his flight, Jed began reading his book. When he stopped reading, the distance remaining in the flight was half the distance flown when he was reading. For what fraction of the trip was Jed reading?

Answer: 1/3

85. Find the value of A,B, C, and D. then complete the addition sentence.

$$\begin{array}{r} A \ BCD \\ + C \ ABC \\ \hline 13 \ 986 \end{array}$$

Answer: A = 7, B = 2, C = 6 ; D = 0; 13 986

86. When rounded to nearest hundredth, 8/9 is 0.89. find another fraction that has the same digits in both the fraction and the rounded decimal.

Answer: 3/8 = 0.38

87. Which is the pattern used for these numbers? 15, 12, 13, 10, 11, 8, 9

$$+ 1, - 3 \quad + 3, - 1 \quad - 3, + 1$$

88. Tanya has 56 marbles. Billy has 24 more than Tanya, and Jerry has 5 more than Billy. How many marbles do they have in all?

Answer: 201

89. Mr. Sands decided to grow a garden so he could make salad. He wants to make it 10.1 m long and 4.2 m wide. However, in order to avoid Bugs Bunny from entering his garden he must make a fence surrounding the garden. He decides to make the fence 11.2 m long and 5.0 m wide. What is the area between the fence and the garden?

Answer: 13.58 m²

90. If you saved \$2.00 on January 1, \$4.00 on February 1, \$6.00 on March 1, \$8.00 on April 1, and so on, how much money would you save in one year?

Answer: $2 + 4 + 6 + 8 + 10 + 12 + 14 + 14 + 18 + 20 + 22 + 24 = \156.00

91. Scooby Doo is thinking of two numbers. Their greatest common factor is 6. Their least common multiple is 36. One of the numbers is 12. What is the other number?

Answer: The other number is 18.

92. Melissa made a list of all the whole numbers between 1 to 100. How many times did she write the number 2?

Answer: 19

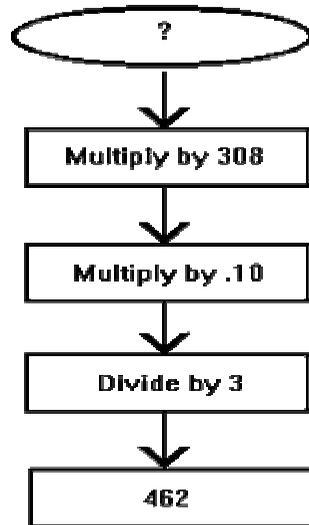
93. Henny passed around a basket of scarlet plums to the girls at her party. Before the party she ate 5 scarlet plums and gave a friend 3. Eight girls arrived at the party. The first girl took a scarlet plum, the second girl took 3 scarlet plums, the third girl took 5 scarlet plums and so on. After the last girl took her scarlet plums, the basket was empty. How many scarlet plums were in the basket at the beginning?

Answer: 72

94. Rob wanted an allowance. His father gave him a choice of getting it on a weekly or on a daily basis. He said he would either pay him \$1.25 a week or pay him in the following manner for a week: On Monday he would give him \$0.01; On Tuesday \$0.02; On Wednesday \$0.04 and on through Sunday. What would you tell Rob to do so he can get more allowance?

Answer: $.01+.02+.04+.08+.16+.32+.64 = \$1.27 > \$1.25$
Rob should ask for a daily allowance.

95. What is the number you started with?



Answer: $(462 * 3) / 0.1 = 13860 - 13860 / 308 = 45$

96. Carpet World is having a sale and Mrs. Black is looking for some carpet for her living room. Her living room is 4m by 5m. How much will it cost her to do this at sale price?

CARPET SALE
Regular \$9.99 square metre
Now on Sale for 20 percent off

Answer: Area = $4\text{m} \times 5\text{m} = 20\text{ m}^2$

$\$9.99/\text{m}^2 \times 20\text{m}^2 = \$199.80 \times .8 = \$159.84$

97. Mrs. Archer's house had 100m^2 of living space. Then he added a room that was 4m by 5m. What was the fractional increase of living space? What was the percent of increase in living space?

Answer: $4\text{m} * 5\text{m} = 20\text{m}^2$

$$20\text{m}^2/100\text{m}^2 = 1/5 = 20 \text{ percent}$$

98. The magician said, "The average of seven numbers is 49. If 1 is added to the first number, 2 is added to the second number, 3 is added to the third number and so on up to the seventh number", what is the new average?

Answer: $49 + (1 + 2 + 3 + 4 + 5 + 6 + 7)/7 = 49 + 4 = 53$

99. The peel of a banana weighs about $1/8$ of the total weight of the banana. If you buy 3 kg of bananas at 1kg for \$0.60, about how much are you paying for the banana peel? For the banana itself? Round to the nearest cent.

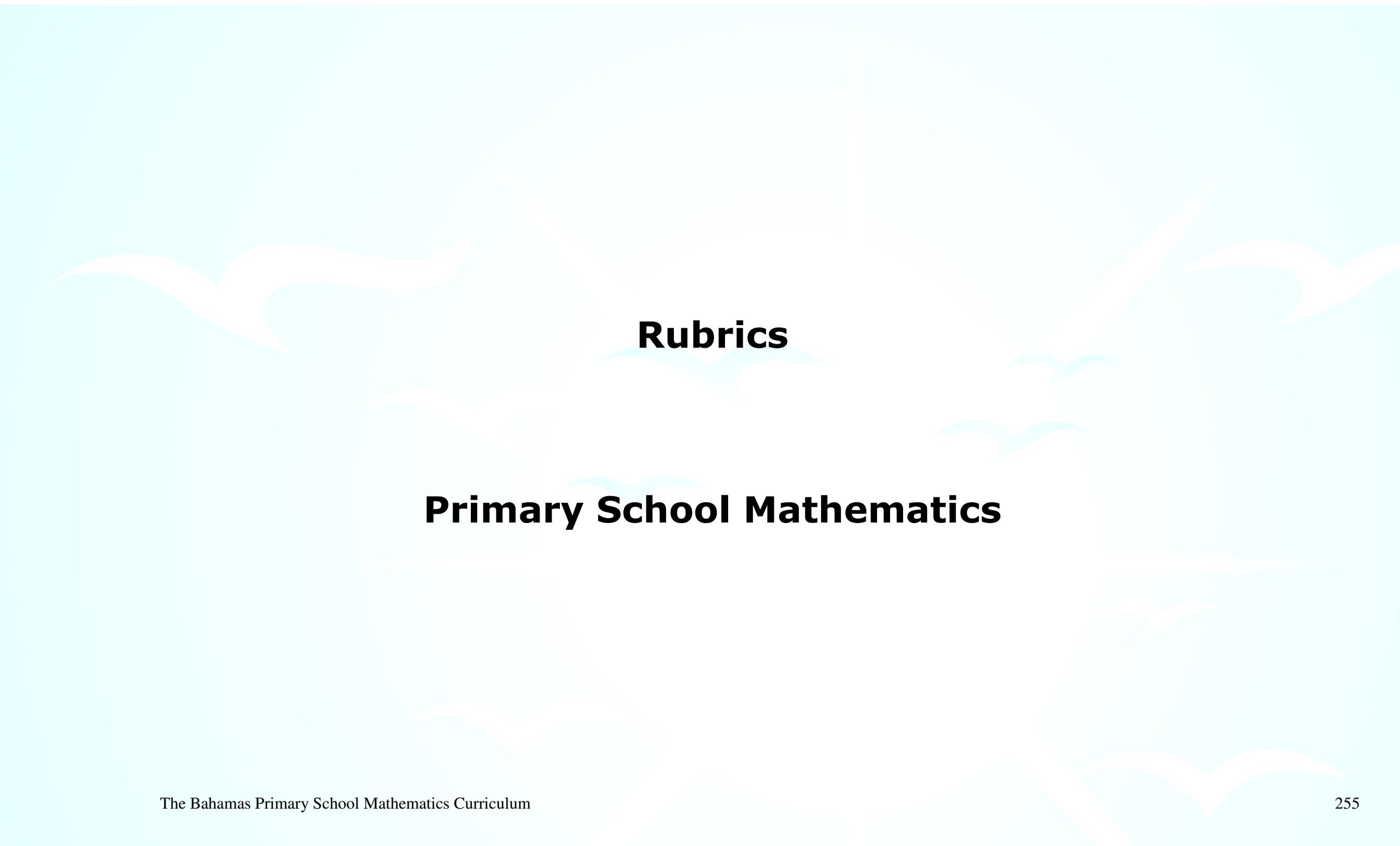
Answer: \$0.23 is spent on the peel.

$$\$1.80 - \$0.23 = \$1.57 \text{ on banana.}$$

100. The number of hours that were left in the day was one-third of the number of hours already passed. How many hours were left in the day?

Answer: 9 hours left = $1/3$ (15) 6 hours left = $1/3$ (18)
9 is not equal to 5 6 hours = 6 hours

6 hours were left in the day.



Rubrics

Primary School Mathematics

REPORT RUBRIC

	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Topic	Totally unrelated	Remotely related	Somewhat relevant	Directly relevant	
Organization	Not organized, events make no sense	Some organization, events jump around, start and end are unclear	Organized, events are somewhat jumpy	Good organization, events are logically ordered, sharp sense of beginning and end	
Quality of Information	Unable to find specific details	Details are somewhat sketchy	Some details are non-supporting to the subject	supporting details specific to subject	
Grammar & Spelling	Very frequent grammar and/or spelling errors	More than two errors	Only one or two errors	All grammar and spelling are correct	
Interest Level	Needs descriptive words	Vocabulary is constant, details lack "color"	Vocabulary is varied, supporting details need work	Vocabulary varied, supporting details vivid	
Neatness	Illegible writing, loose pages	Legible writing, some ill-formed letters, print too small or too large, papers stapled together	Legible writing, well-formed characters, clean and neatly bound in a report cover, illustrations provided	Word processed or typed, clean and neatly bound in a report cover, illustrations provided	
Timeliness	Report handed in more than one week late	Up to one week late	Up to two days late	Report handed in on time	
				Total	

ARTbeat@school

<http://www.sdcoe.k12.ca.us/score/actbank/reportrub.html>

GROUP DISCUSSION SCORING GUIDE

Teacher Name: _____

Student Name: _____

CATEGORY	4	3	2	1
Contributions	Routinely provides useful ideas when participating in the group and in the group discussion. A definite leader who contributes a lot of effort.	Usually provides useful ideas when participating in the group and in classroom discussion. A strong group member who tries hard!	Sometimes provide useful ideas when participating in the group and in classroom discussion. A satisfactory group member who does what is required.	Rarely provides useful ideas when participating in the group and in classroom discussion. May refuse to participate.
Attitude	Never is publicly critical of others. Always has a positive attitude about the task (s).	Rarely is publicly critical others. Often has a positive attitude about the task (s).	Occasionally is publicly critical of others. Usually has a positive attitude about the task (s).	Often is publicly critical of the project or others. Often has a negative attitude about the task (s).
Working with Others	Almost always listen to, shares with, and supports the efforts of others.	Usually listens to, shares with, and supports the efforts of others.	Often listens to, shares with and supports the efforts of others.	Rarely listens to, shares with, and supports the efforts of others.
Effort	Participation reflects student's best efforts.	Participation reflects a strong effort from this student.	Participation reflects some effort from this student.	Participation reflects very little effort on the part of this student.
CATEGORY	4	3	2	1
Contributions	Routinely provides useful ideas when participating in the group and in classroom discussion. A definite leader who contributes a lot of effort.	Usually provides useful ideas when participating in the group and in classroom discussion. A strong group member who tries hard!	Sometimes provide useful ideas when participating in the group and in classroom discussion. A satisfactory group member who does what is required.	Rarely provides useful ideas when participating in the group and in classroom discussion. May refuse to participate.

Rubric Made Using: RubiStar (<http://rubistar.4teachers.org>)

COOPERATIVE LEARNING RUBRIC

	1	2	3	4
Contribution to group goals	Works toward group goals only when prompted	Works toward group goals with occasional prompting	Works toward group goals without occasional prompting; accepts and fulfills individual role within group	Consistently and actively works toward group goals; willingly accepts and fulfills individual role within group
Consideration of others	Needs occasional reminders to be sensitive to the feelings of others	Shows sensitivity to the feeling of others	Shows and expresses sensitivity to the feelings of others; encourages the participation of others	Shows sensitivity to the feelings and learning needs of others; values the knowledge, opinion, and skills of all group members and encourages their contribution
Contribution of knowledge	Contributes information to the group only when prompted	Contributes information to the group with occasional prompting or reminding	Contributes knowledge, opinions, and skills without prompting or reminding	Consistently and actively contributes knowledge, opinions, and skills without prompting or reminding
Working and sharing with others	Participates in needed changes when prompted and encouraged; always or often relies on others to do the work	Participates in needed changes with occasional prompting; often needs reminding to do the assigned work	Willingly participates in needed changes; usually does the assigned work and rarely needs reminding	Helps the group identify necessary changes and encourages group action for change; always does the assigned work without having to be reminded

Signatures and comments:

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CLASS DEBATE RUBRIC

Category	Excellent	Good	Satisfactory	Needs Improvement
Information	All information was accurate and clear	Most information was accurate and clear	Most information was accurate and clear, but not usually thorough	Information had several inaccuracies or was usually unclear
Rebuttal	All counter-arguments were accurate, relevant, and strong	Most counter-arguments were accurate, relevant and strong	Most counter-arguments were accurate, and relevant, but several were weak	Counter-arguments were not accurate or relevant
Organization	All arguments were logical and clearly followed a premise	Most arguments were logical and clearly followed a premise	Arguments were logical, but did not always follow a premise	Arguments were illogical and did not follow a premise
Understanding of Topic	The team clearly understood the topic fully and presented convincingly	The team clearly understood the topic and presented with ease	The team understood the main points of the topic and presented those well	The team did not exhibit an adequate understanding of the topic
Respect for Other Team	Showed high respect for other team in language, responses, and body language	Showed good respect for other team in language, responses, and body language	Showed moderate respect for other team in language, responses, and body language	Language, responses, and body language were consistently disrespectful

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JOURNAL RESPONSE AND COMPREHENSION RUBRIC

Use this rubric to assess students' abilities to complete the journal activities assigned for this lesson. Share this assessment with students prior to completing the journal-writing lesson so they will understand how they will be assessed. You can also use the rubric as a basis for discussion and feedback with each student.

Student name: _____

Date: _____

1. The student writes journal responses in complete sentences. _____
2. The student writes three or more sentences to answer questions. _____
3. The student responds to questions by self-questioning, retelling, predicting, _____
4. The student's experiences and opinions are clear. _____
5. The student works with a peer to share journal responses and to develop a combined response when requested. _____

Scale:

Excellent 4	Very Good 3	Fair 2	Poor 1
The student completes the task with no major errors. The student demonstrates a full understanding of the concepts.	The student completes the task with only a few major errors and some minor errors. The student demonstrates a strong understanding of the concepts.	The student fails to complete the task with some major errors and many minor errors. The student has difficulty understanding the concepts.	The student fails to complete the task. The student does not understand the concepts.

Include anecdotal notes in the space below:

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Children's Literature

Primary School Mathematics

CHILDREN'S LITERATURE FOR MATHEMATICS

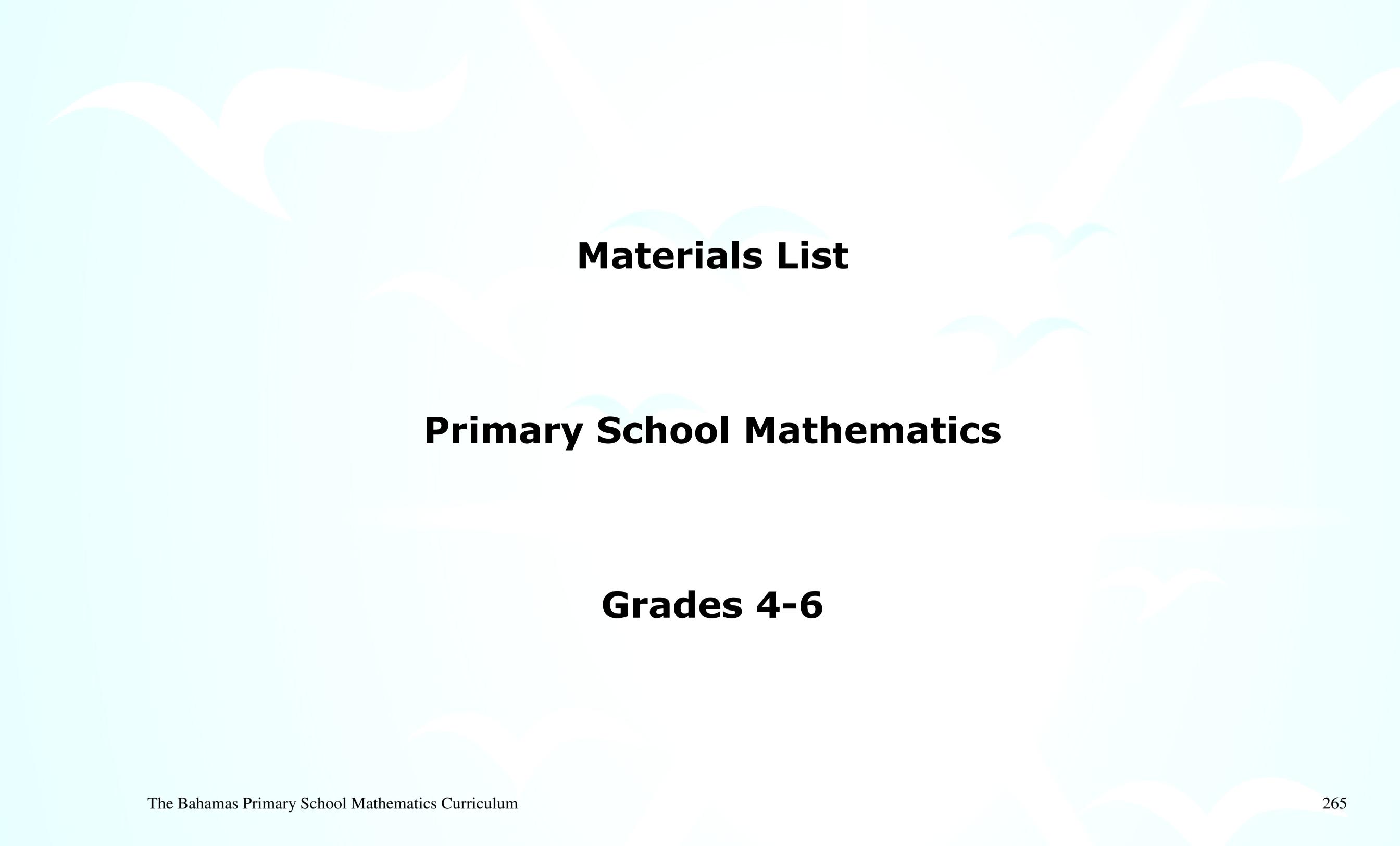
TITLE	AUTHOR	ISBN NUMBER
Two of Everything	Lilly Toy Hong	0-8075-8157-7
The Crayon Counting Book	Pam Munoz Ryan and Jerry Palotta	8-88106-953-1
The M& Ms Counting Book	Barbara Barbieri McGarth	0-88106-853-5
Seven Little Hippos	Mike Thaler	0-671-89907-4
Five Little Ducks	Pamela Papacone	1-55858-473-0
Nine O'Clock Lullaby	Marilyn Singer	0-06-443319-6
The Go-Around Dollar	Barbara Johnston Adams	0-02-700031-1
The Very Hungry Caterpillar	Eric Carle	0-399-20853-4
Ten Black Dots	Donald Carews	0-688-13574-9
What Comes in 2's, 3's and 4's?	Suzanne Aker	0-671-79247-4
The King's Chessboard	David Birch	0-14-054880-7
Sea Squares	Joy Hulme	1-56282-520-8
Frog Counts To Ten	John Lieber	1-56294-698-6
Clocks and More Cocks	Pat Hutchins	0-689-71769-5
Monster Money Book	Lareen Leedy	0-8234-0922-8
2x2= Boo	Lareen Leedy	0-8234-1190-7
The Greedy Triangle	Marilyn Burns	0-590-48991-7
GrandfatherTang's Story	Ann Tompert	0-517-57487-X
A Quarter From The Tooth Fairy	Caren Holtzman	0-590-26598-9
Bat Jamboree	Kathi Appelt	0-688-13883-7
Anno's Counting Book	Mitsumasa Anno	0-06-443123-1
Counting on Frank	Roger Clement	0-8368-0358-2
Seven Blind Mice	Ed Young	0-590-46971-1
Counting by Kangaroos	Joy N. Hulme	0-7167-6602-7
Sea Sums	Joy N. Hulme	0-7868-0170-0
Mother Goose Math	Emily Boland	0-670-87569-4
So Many Circles, So Many Squares	Tana Hoban	0-688-15165-5 TR
Spaghetti and Meatballs for All	Marilyn Burns	0-590-94459-2

CHILDREN'S LITERATURE FOR MATHEMATICS

TITLE	AUTHOR	ISBN NUMBER
In The Next Three Seconds	Rowland Morgan	0-525-67551-5
The Shape of Things	Dayle Ann Dobbs	1-56402-698-1
Anno's Counting House	Mitsumasa Anno	0-399-20896-8
Math Counts Length	Henry Pluckrose	0-516-45453-6
Five Little Monkeys Jumping On a Bed	Eileen Christlow	0-395-55701-1
Five Little Monkeys Sitting in a Tree	Eileen Christlow	0-395-66413-6
A Remainder of One	Elinor J. Pinczes	0-395-69455-8
Notorious Numbers	Paul Giganti, Jr.	1-56785-006-5
10 For Dinner	JoEllen Bogart	0-590-73173-4
Each Orange Had 8 Slices	Paul Giganti, Jr.	0-688-13116-6
How Big Is a Foot	Rolf Myller	0-440-40495-9
Math Counts Weight	Henry Pluckrose	0-516-45460-9
Math Counts Pattern	Henry Pluckrose	0-516-45455-2
Math Counts Sorting	Henry Pluckrose	0-516-45458-7
Even Steven and Odd Todd	Kathryn Cristaldi	0-590-22715-7
Harriet's Halloween Candy	Nancy Carlson	0-87614-850-X
The Button Box	Margarette S. Reid	0-14-055495-5
From One to One Hundred	Teri Sloat	0-14-055643-5
A Grain of Rice	Helena Claire Pittman	0-553-15986-0
How The Second Grade Got \$8,205.50 to Visit the Statue Of Liberty	Nathen Zimelman	0-8075-3431-5
Neighborhood Soup	JoAnne Nelson	0-8136-4266-3
Ten Sly Piranhas	Victoria Chess	0-8037-1200-6
Sadako and the Thousand Paper Cranes	Eleanor Coerr	0-440-47465-5
The Paper Crane	Molly Bang	0-688-07333-6
Anno's Mysterious Multiplying Jar	Masaichiro & Mitsumasa Anno	0-399-20951-4
More Than One	Miriam Schlein	0-688-14103-XLE
One Hundred Hungry Ants	Elinor Pinczes	0-395-63116-5
A Giraffe And A Half	Shel Silverstein	0-06-025655-9

CHILDREN’S LITERATURE FOR MATHEMATICS

TITLE	AUTHOR	ISBN NUMBER
17 Kings and 42 Elephants	Margaret Mahy	0-8037-0458-5
How Much Is A Million?	David M. Schwartz	0-590-43614-7
If You Made A Million	David M. Schwartz	0-688-07017-5
Somebody and the Three Blairs	Marilyn Tolhurst	0-531-05876-6
Sadako	Eleanor Coerr, Ed Young	0-399-21771-1
The King’s Commissioners	Aileen Freedman	0-590-48987-9
Half and Half	JoAnne Nelson	0-8136-4311-2
The Great Graph Contest	Loreen Leedy	0-8234-2029-9
How Do You Know What Time it is?	Robert E. Wells	0-8075-7940-8
Fraction Fun	David A. Adler	0-8234-1259-8
Anno’s Mysterious Multiplying Jar	Masaichiro and Mitsumasa Anno	0-6981-1753-0
Remainder of One	Elinor J.Pinczes	1-6182-5077-8
Pigs Will Be Pigs: Fun with Math and Money	Amy Axelrod	0-6898-1219-1
Sir Cumference and the Great Knight of Angleland: A Math Adventure	Cindy Neuschwander	1-5709-1166-5
Fraction Action	Loreen Leedy	9-7808-2341-109-2
The Math Chef	Joan D’Amico and Karen EichDrummond	0-4711-3813-4
The Amazing Impossible Erie Canal	Cheryl Harness	9-7806-8982-584-2
Piece = Part = Portion: Fractions = Decimals = Percents	Scott Gifford	1-58246-102-3
Sir Cumference and the Sword in the Cone: A Math Adventure	Cindy Neuschwandwander	5-709-1601-2
Fair is Fair	Jennifer Dussling	13: 9-7806-1379-279-0
Measuring Penny	Loreen Leedy	0-6702-4133-4
Grandfather Tang’s Story: A Tale Told with Tangrams	Ann Tompert	0-5178-8558-1
The Grape of Math	Greg Tang	0-4392-1042-9
Keep Your Distance!	Gail Herman	9-7806-1339-333-1
One is a Snail: Ten is a Crab	April Pulley Sayre	9-7807-6362-631-0
Go Fractions!	Judith Bauer Stamper	9-780-4484-3113-0
Hottest, Coldest, Highest, Deepest	Steve Jenkins	0-6184-9488-X

The background of the page is a light teal color with several stylized birds in flight, rendered in a darker teal and a light yellow color. The birds are scattered across the page, some in the foreground and some in the background, creating a sense of movement and depth.

Materials List

Primary School Mathematics

Grades 4-6

**PRIMARY SCHOOL MATHEMATICS
MATERIALS LIST
GRADE 4**

The following is a list of materials that should be **available** to every grade 4 Classroom in the Bahamas. Ultimately, we should strive to have each grade 4 **equipped** with these items.

QUANTITY	MATERIALS	QUANTITY	MATERIALS
15	Classroom set fraction calculators		An assortment of math-related games
* 15	Geoboards with rubber bands		Hundreds chart
1	Overhead geoboard	*	Number line
1	Overhear projector		Multiplication chart
15	Sets of number cubes	3	Balance scales
15 each type	Spinners-varied types	1	Bathroom scale
15	Metre sticks	1000	Centicubes
	Overhead transparencies	*15	Sets of tangrams
1000	Linking cubes	1	Overhead set of tangram
15	Sets Cuisenaire rods	1	Overhead fraction calculator
1	Overhead set of Cuisenaire rods	*15	Sets of pentominoes
*15	Sets of fraction circles and overhead pieces	1	Overhead set of pentominoes
	Scissors	500	1-Inch cubes
*500	Counters	*	Addition, subtraction, multiplication and division flash cards

**PRIMARY SCHOOL MATHEMATICS
MATERIALS LIST
GRADE 4**

The following **consumables** should be available in every grade 5 classroom:

QUANTITY	MATERIALS	QUANTITY	MATERIALS
*	Old magazine, catalogues and newspapers		Pipe cleaners
	Index cards		Rope
	Graph paper	*	String
*	Egg cartons	*	Thread
*	Boxes of all sizes	*	Straws
	Coloured pencils	*	Toothpick
*	Beads	*	Rice
*	Buttons	*	Macaroni
*	Wax paper		Blank cassette tapes
	Tracing paper		Paper clips

- **These items can be obtained inexpensively, made, or collected.**

**PRIMARY SCHOOL MATHEMATICS
MATERIALS LIST
GRADE 5**

QUANTITY	MATERIALS	QUANTITY	MATERIALS
1	Overhead projector	*	Individual student sets of counters
	Hundreds chart	15	Sets of Cuisenaire rods
½ box	Overhead blank transparencies		A collection of Math-related games and puzzles
*5 sets	Multiplication flash cards		Classroom set of fraction calculators
5	Decks of cards	1	Overhead fraction calculator
*15	Sets of fraction circles	1000	Centicubes
1	Classroom Hands-On Equations Kit	15	Sets of pattern blocks (about 5 tubs)
15	Sets of number cubes and dice		Digital display clock
*	Display number line	15	Miras
*15	Geoboards	15 each type	Spinners
1	Overhead geoboards	*15	Sets of tangrams
	Place value chart	1	Overhead set of tangrams
15	Measuring tapes/rules	500	1-Inch cubes
	Display calendar		An assortment of Math games
	Celsius thermometers	*	Addition and subtraction flash cards
	Individual student compass and protractor	4	Buckets of 2-sided colour counters (200 per bucket)

**PRIMARY SCHOOL MATHEMATICS
MATERIALS LIST
GRADE 5**

The following **consumables** should be available in every grade 5 classroom:

QUANTITY	MATERIALS	QUANTITY	MATERIALS
*	Old magazine, catalogues and newspapers		Pipe cleaners
	Index cards		Rope
	Graph paper	*	String
*	Egg cartons	*	Thread
*	Boxes of all sizes	*	Straws
	Coloured pencils	*	Toothpick
*	Beads	*	Rice
*	Buttons	*	Macaroni
*	Wax paper		Blank cassette tapes
	Tracing paper		Paper clips

- **These items can be obtained inexpensively, made or collected.**

**PRIMARY SCHOOL MATHEMATICS
MATERIALS LIST
GRADE 6**

The following is a list of materials that should be **available** to every grade 6 classroom in the Bahamas. Ultimately, we should strive to have each grade 6 **equipped** with these items.

QUANTITY	MATERIALS	QUANTITY	MATERIALS
4	Buckets of 2-colour counters (200 per bucket)	*	Sets of multiplication flash cards
1	Overhead projector		An assortment of math games and puzzles
15	Decks of cards	15	Classroom set of fraction calculators
15 of each	Sets of dice/Number cubes	15	Sets of Cuisenaire rods
15 each type	Spinners- various types	10	Metric sticks
*15	Sets of fraction circles	15	Metric rules/tape measures
1 each	Overhead set of fraction circles, tangrams, Cuisenaire rods, fraction calculator	*	Student sets of counters
*5	Tubs of pattern blocks	500	1-Inch cubes
*15	Tangrams	*	Addition and subtraction flash cards
1	Classroom Hands-On Equations kit		Multiplication chart
*	Display number line	*	Multiplication/Division flash cards

**PRIMARY SCHOOL MATHEMATICS
MATERIALS LIST
GRADE 6**

The following **consumables** should be available in every grade 6 classroom:

QUANTITY	MATERIALS	QUANTITY	MATERIALS
*	Old newspapers, magazines and catalogues	*	Toothpicks
	Graph cards		Paper clips
*	Empty boxes	*	Egg cartons

*** These items can be made collected or obtained inexpensively.**

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