



COMMONWEALTH OF THE BAHAMAS
MINISTRY OF EDUCATION

Mathematics

ARTS & SCIENCES SECTION

National Pacing Guide

GRADES:7-9

2022-2023

**Department of Education
National Pacing Guide: Grade 7
Mathematics
Junior High School (2022-2023)**

Term 1

Grade 7	Objectives	12 Weeks
Number Theory	<p>Identify/locate the natural/counting and, whole numbers as points on the real number line.</p> <p>Define and identify odd, even, prime, composite</p> <p>Identify factors and multiples of whole numbers (apply divisibility rules).</p> <p>Use list of factors to find H.C.F., use list of multiples to find L.C.M.</p> <p>Prime factorization of whole numbers.</p> <p>Exponential/index notation (base, natural number exponent/index, power).</p> <p>Powers of whole numbers natural number exponents only.</p> <p>Define and identify, square, cube numbers</p> <p>Explore the powers of ten (natural number exponents only).</p> <p>Identify and explain that our number system is a decimal (base ten) system.</p> <p>Write numbers in expanded form using powers of ten.</p> <p>Multiply whole numbers by powers of ten.</p>	3

	<p>Divide whole numbers by powers of ten, with remainders where necessary.</p> <p>Prime factorization using index form.</p>	
Points/Lines/Line segments/angles	<p>Define and Identify:</p> <ul style="list-style-type: none"> • Plane • Plane figure • Point • Line • Line segment • Ray • Angle • Vertex • Space • Space figure • Types of Lines in a plane: <ul style="list-style-type: none"> - Intersecting - Perpendicular - Parallel <p>Use 3 letters or a single letter to name an angle.</p> <p>Identify physical examples of geometric objects</p>	2
Fractions	<p>Define rational numbers as common fractions.</p> <p>Revise vocabulary of common fractions: fraction, numerator, denominator, proper and improper fractions, mixed numbers, equivalent fractions, reduce fraction, lowest terms.</p>	

	<p>Identify/locate rational numbers on the real number line.</p> <p>Compare and Order with and without the number line. Use of inequality symbols.</p> <p>Add, subtract, multiply and divide two fractions and/or mixed numbers.</p> <p>Problem solving involving addition, subtraction, multiplication, and division, of two fractions.</p> <p>Rational numbers as decimals.</p> <p>Decimal place value: billions to thousandths</p> <p>Reading and writing decimal numbers.</p> <p>Writing decimal fractions as decimal numbers and vice versa.</p> <p>Identify/locate decimal numbers on the real number line.</p> <p>Compare and Order with and without the number line. Use of inequality symbols.</p>	<p>2</p>
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Decimals	<p>Adding, subtracting decimals with and without regrouping.</p> <p>Multiply and divide decimals by powers of ten.</p> <p>Multiply and divide decimals by whole numbers.</p> <p>Multiply and divide decimals by a decimal.</p> <p>Solve problems using operations on decimals.</p>	1 ½
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<p>Percentages</p>	<p>Define percent (%) Compare and order percents.</p> <p>Convert percents to common fractions and vice versa.</p> <p>Convert percents to decimals and vice versa.</p> <p>Convert between common fractions, decimals and percents.</p> <p>Solving simple word problems involving percents.</p> <p>Expressing one quantity as a percentage of another.</p> <p>Problem solving: Expressing one quantity as a percentage of another.</p>	<p>1 ½</p>
<p>Algebra</p>	<p>Operating on terms, each with one symbol: Adding & Subtracting like terms Multiplying & Dividing terms</p> <p>Simplifying expressions by collecting like terms.</p>	<p>2</p>

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Term 2

Grade 7	Objectives	13 Weeks
Fractions	<p>Define rational numbers as common fractions.</p> <p>Revise vocabulary of common fractions: fraction, numerator, denominator, proper & improper fractions, mixed numbers, equivalent fractions, reduce fraction, lowest terms.</p> <p>Identify/locate rational numbers on the real number line.</p>	2
Decimals	<p>Rational numbers as decimals.</p> <p>Decimal place value: billions to thousandths</p> <p>Reading and writing decimal</p> <p>Writing decimal fractions as decimal numbers and vice versa.</p> <p>Identify/locate decimal numbers on the real number line.</p> <p>Compare & Order with and without the number line. Use of inequality symbols.</p> <p>Adding, subtracting decimals with and without regrouping.</p> <p>Multiply and divide decimals by powers of ten.</p> <p>Multiply and divide decimals by whole numbers.</p> <p>Multiply and divide decimals by a decimal.</p> <p>Solve problems using</p>	1
Percentages	<p>Define percent (%)</p> <p>Compare and order percents.</p>	1

	<p>Convert percents to common fractions and vice versa.</p> <p>Convert percents to decimals and vice versa.</p> <p>Convert between common fractions, decimals and percents.</p> <p>Solving simple word problems involving percents.</p> <p>Expressing one quantity as a percentage of another.</p> <p>Problem solving: Expressing one quantity as a percentage of another.</p>	
Algebra	<p>Terminology & Notation: Define & Identify Constant, Variable, Term, Like Terms, Numerical Coefficient, Expression & Equation</p> <p>Writing basic expressions: Sums, differences, products, & quotients.</p> <p>Writing simple equations involving one operation.</p> <p>Operating on terms, each with one symbol: Adding & Subtracting like terms Multiplying & Dividing terms</p> <p>Simplifying expressions by collecting like terms.</p>	2
Coordinate Geometry	<p>Graphing and Identifying points in the Cartesian plane, integer coordinates only.</p> <p>Graphing and identifying horizontal and vertical lines.</p> <p>Determining lengths of horizontal and vertical line segments.</p>	1
Consumer Math	<p>Convert between units of money for countries with decimal currency.</p> <p>Solving monetary word problems involving one of the four operations. Convert between units of money for countries with decimal currency.</p>	1

	Solving monetary word problems involving one of the four operations.	
Measurement/Mensuration	<p>Define length, mass and capacity</p> <p>Define and determine benchmarks for imperial units of length, mass and capacity.</p> <p>Estimate and measure lengths using appropriate imperial units.</p> <p>Estimate mass and capacity using appropriate imperial units.</p> <p>Converting between imperial units of length, mass and capacity.</p> <p>Define and determine benchmarks for metric units of length, mass and capacity.</p> <p>Estimate and measure lengths using appropriate metric units.</p> <p>Estimate mass and capacity using appropriate metric units.</p> <p>Converting between metric units of length, mass and capacity.</p> <p>Use rough equivalents to convert between imperial and metric units of capacity</p> <p>Define and convert between units of time. Reading calendars and schedules</p> <p>Read and illustrate time on the 12-hour and 24-hour clocks</p> <p>Elapsed time on the 12-hour clock.</p> <p>Reading thermometers marked in degrees Fahrenheit and/or Celsius.</p> <p>Define perimeter</p> <p>Calculate perimeter of polygons.</p> <p>Discover Pi as the ratio of a circle's circumference to its diameter</p>	2

	<p>Deduce an equation relating the circumference and diameter of a circle.</p> <p>Define area</p> <p>Determine area by counting squares.</p> <p>Calculate area of squares, rectangles and triangles.</p> <p>Define volume</p> <p>Determine volume of cubes</p>	
The Circle	<p>Define a circle</p> <p>Define and identify parts of a circle:</p> <ul style="list-style-type: none"> • Centre • Radius • Diameter • Circumference • Arc • Chord <p>Explain the relationship between radius and diameter.</p> <p>Discover Pi as the ratio of a circle's circumference to its diameter.</p> <p>Determine the diameter given radius and vice versa</p> <p>Construct circles of given radii and diameters using a pair of compasses.</p>	1
Ratio & Proportion	<p>Demonstrate an understanding of the elementary ideas and notation of ratios.</p> <p>Use a ratio to compare two numbers or similar quantities.</p> <p>Determine equivalent ratios</p> <p>Write ratios in the form $1 : a$ or $a : 1$ (where a is a whole number).</p> <p>Divide a quantity in a given ratio.</p> <p>Determine the scale of a map.</p>	2

	Use a map scale to calculate distance.	
Probability	<p>Define and explain the terminology associated with probability: experiment, outcomes, event, chance, likely, unlikely, certain, impossible, odds.</p> <p>Assign a value from 0 to 1 for the likelihood of given events.</p> <p>Identify values that represent probabilities.</p> <p>Determine the set of all possible outcomes for the following experiments with equally likely outcomes: tossing a coin, rolling a die, selecting/drawing a letter/number/object from a set of letters/ numbers/ objects, spinning a spinner.</p> <p>Use the following definition and notation to express probabilities as common fraction:</p> $P(E) = \frac{\text{Number of Event Occurrences}}{\text{Total Number of Observations}}$ <p>Using odds versus probabilities to describe the chances of events occurring.</p>	1
Statistics	<p>Read and interpret tables, pictograms, vertical and horizontal bar charts, line graphs, and pie charts.</p> <p>Define and identify raw data: categorical and discrete numerical.</p> <p>Conduct simple surveys to collect categorical and numerical data.</p> <p>Organize raw data (categorical and numerical) using tally charts.</p> <p>Representing data using frequency tables, vertical and horizontal bar graphs,</p> <p>Draw bar charts, and pictograms to display data</p>	1 ½

Sets	<p>Define a set.</p> <p>Use upper case letters to name sets.</p> <p>Use set braces (curly brackets, { }) to indicate a set.</p> <p>List the elements of sets when given precise English descriptions of the sets.</p> <p>Identify descriptions that do not describe unique sets.</p> <p>Describe a set using words that indicate precisely which elements belong to the set.</p>	1 ½
Transformation & Symmetry	<p>Define transformation</p> <p>Define reflection and mirror line</p> <p>Recognize and draw reflections in horizontal and vertical lines.</p> <p>Define line/reflective symmetry and the axis of symmetry</p> <p>Identify and draw lines of symmetry so that a given horizontal/vertical line is the axis of symmetry.</p> <p>Complete a shape so that a given horizontal or vertical line is the axis of symmetry</p>	1
Polygons & Solids	<p>Identify and describe common solids shapes.</p> <ul style="list-style-type: none"> • Cubes • Cuboids • Spheres • Cylinders • Cones • Prisms • Pyramids <p>Identify the nets of common solid shapes.</p> <p>Draw nets and make cubes and cuboids.</p> <p>Explain the similarities and differences between cubes and cuboids.</p>	1

	State the number of faces, vertices and edges of cubes and cuboids.	
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Term 3

Grade 7	Objectives	7 Weeks
Probability	<p>Define and explain the terminology associated with probability: experiment, outcomes, event, chance, likely, unlikely, certain, impossible, odds.</p> <p>Assign a value from 0 to 1 for the likelihood of given events.</p> <p>Identify values that represent probabilities.</p> <p>Determine the set of all possible outcomes for the following experiments with equally likely outcomes: tossing a coin, rolling a die, selecting/drawing a letter/number/object from a set of letters/ numbers/ objects, spinning a spinner.</p> <p>Use the following definition and notation to express probabilities as common fraction:</p> $P(E) = \frac{\text{Number of Event Occurrences}}{\text{Total Number of Observations}}$ <p>Using odds versus probabilities to describe the chances of events occurring.</p>	1
Statistics	<p>Read and interpret tables, pictograms, vertical and horizontal bar charts, line graphs, and pie charts.</p> <p>Define and identify raw data: categorical and discrete numerical.</p>	1 ½

	<p>Conduct simple surveys to collect categorical and numerical data.</p> <p>Organize raw data (categorical and numerical) using tally charts.</p> <p>Representing data using frequency tables, vertical and horizontal bar graphs,</p> <p>Draw bar charts, and pictograms to display data</p>	
Sets	<p>Define a set.</p> <p>Use upper case letters to name sets.</p> <p>Use set braces (curly brackets, { }) to indicate a set.</p> <p>List the elements of sets when given precise English descriptions of the sets.</p> <p>Identify descriptions that do not describe unique sets.</p> <p>Describe a set using words that indicate precisely which elements belong to the set.</p>	1 ½
Transformation & Symmetry	<p>Define transformation</p> <p>Define reflection and mirror line</p> <p>Identify and draw reflections in horizontal and vertical lines.</p> <p>Define line/reflective symmetry and the axis of symmetry</p> <p>Recognize and draw lines of symmetry so that a given horizontal/vertical line is the axis of symmetry.</p> <p>Complete a shape so that a given horizontal or vertical line is the axis of symmetry</p>	1
Polygons & Solids	<p>Identify and describe common solids shapes.</p> <ul style="list-style-type: none"> • Cubes • Cuboids • Spheres • Cylinders • Cones • Prisms • Pyramids 	1

	<p>Identify the nets of common solid shapes.</p> <p>Draw nets and make cubes and cuboids.</p> <p>Explain the similarities and differences between cubes and cuboids.</p> <p>State the number of faces, vertices and edges of cubes and cuboids.</p>	
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**Department of Education
National Pacing Guide: Grade 8
Mathematics
Junior High School (2022-2023)**

Term 1

Grade 8	Objectives	12 Weeks
Number Theory	<p>Use prime factorization to find H.C.F. & L.C.M.,</p> <p>Multiply and divide whole numbers by powers of ten.</p> <p>Squares and square roots.</p> <p>Use prime factorization to find square roots.</p> <p>Problem solving involving addition, subtraction, multiplication, and division, factors, multiples, H.C.F. and L.C.M., squares and square roots</p>	3
Points/Lines/Line segments/angles	<p>Define and identify Complementary and supplementary angles.</p> <p>Define and identify angles at a point.</p> <p>Define and identify Complementary and supplementary angles.</p> <p>Define and identify angles at a point.</p> <p>Review Measure and draw angles using a protractor and straight edge.</p>	2

	<p>Draw and determine the measure of a reflex angle.</p> <p>Determine complements and supplements of angles.</p> <p>Calculate the size of a missing angle at a point.</p>	
Fractions	<p>Order fractions in ascending and descending order with and without the number line.</p> <p>Addition, subtraction, multiplication and division of up to three fractions and/or mixed number and two operations.</p> <p>Problem solving involving addition, subtraction multiplication and division of up to three fractions and two operations.</p>	1 ½
Decimals	<p>Decimal place value: billions to ten thousandths.</p> <p>Change common fractions to decimals and vice versa.</p>	1 ½

	<p>Identify rational numbers as terminating and recurring (repeating) decimals using the dot (.) and bar (̄) notation above single repeated digits and blocks of repeated digits.</p> <p>Comparing and ordering decimals with and without the number line.</p> <p>Add, subtract, multiply and divide decimals.</p> <p>Problem solving involving at least two of the operations, addition, subtraction multiplication and division</p>	
Percentages	<p>Calculating a percentage of a number or quantity.</p> <p>Percentage increase/decrease</p>	1 ½
Consumer Math	<p>Solving monetary word problems involving at least two operations.</p> <p>Calculating profit and loss.</p> <p>Calculating percentage profit and profit loss and mark-up and markdown.</p> <p>Calculating discounts.</p> <p>Calculating Value Added Tax (VAT)</p>	2 ½

**Department of Education
National Pacing Guide: Grade 8
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Term 2

Grade 8	Objectives	13 Weeks
Decimals	<p>Decimal place value: billions to ten thousandths.</p> <p>Change common fractions to decimals and vice versa.</p> <p>Identify rational numbers as terminating and recurring (repeating) decimals using the dot (·) and bar (̄) notation above single repeated digits and blocks of repeated digits.</p> <p>Comparing and ordering decimals with and without the number line.</p> <p>Add, subtract, multiply and divide decimals.</p> <p>Problem solving involving at least two of the operations, addition, subtraction multiplication and division.</p>	1 ½
Percentages	<p>Calculating a percentage of a number or quantity.</p> <p>Percentage increase/decrease</p>	1 ½
Consumer Math	<p>Solving monetary word problems involving at least two operations.</p> <p>Calculating profit and loss.</p> <p>Calculating percentage profit and profit loss and mark-up and markdown.</p> <p>Calculating discounts.</p> <p>Calculating Value Added Tax (VAT)</p>	2
Coordinate Geometry	<p>Construct/complete table of values for a linear function.</p> <p>Graphing lines from a table of values, integer coordinates only.</p>	1

Algebra	<p>Translate English phrases into algebraic expressions and vice versa: up to two operations without brackets.</p> <p>Translate English sentences into algebraic equations.</p> <p>Operating on terms, involving two or more symbols and powers.</p> <p>Simplify expressions by collecting like terms including terms with powers</p> <p>Identifying the base and exponent in algebraic expressions.</p> <p>Rewriting expressions involving powers.</p> <p>Evaluate algebraic expressions and formulae by substituting integers for symbols</p> <p>Multiplying sums and differences by integers and variables.</p> <p>Rewriting sums and differences of simple algebraic term as products.</p>	2
Ratio & Proportion	<p>Use ratios to compare measurements with different units.</p> <p>Simplify ratios with fractional terms.</p> <p>Write ratios in the form 1 : a or a : 1</p> <p>Share a quantity in a given ratio.</p> <p>Define the term proportion.</p> <p>Identify proportions.</p> <p>Solve proportions for missing terms</p> <p>Use proportions to find missing quantities.</p>	2
Measurement/Mensuration	<p>Convert units of time</p> <p>Adding and subtracting mixed units of time.</p>	2

	<p>Convert 12-hour time to 24-hour and vice-versa.</p> <p>Calculating elapsed time</p> <p>Problem solving involving calendars, schedules and time duration.</p> <p>Comparing temperatures in degrees Fahrenheit and Celsius.</p> <p>Calculate perimeters of simple compound shapes involving squares, rectangles and triangles.</p> <p>Explore the value of pi.</p> <p>Calculate the circumference of circles.</p> <p>Apply formulas for areas of squares, rectangles, triangles and parallelograms.</p> <p>Determine volume of cubes and cuboids.</p>	
The Circle	<p>Define and identify parts of a circle:</p> <ul style="list-style-type: none"> • Centre • Radius • Diameter • Circumference • Arc • Chord • Quadrant • Semi-circle 	1

**Department of Education
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Term 3

Grade 8	Objectives	7 Weeks
Probability	<p>Express probabilities of single events as common fractions, decimals, and percents.</p> <p>Determine the probability that an event does not happen.</p> <p>Deduce the following relationship for complementary events: $P(\text{event } A \text{ happens}) + P(\text{event } A \text{ does not happen}) = 1$</p> <p>Calculate the probability that an event does not happen using: $P(\text{event } A \text{ does not happen}) = 1 - P(\text{event } A \text{ happens})$</p> <p>Use probabilities to estimate the number of times an event is likely to happen when experiments are repeated.</p>	1
Statistics	<p>Define and calculate mean, median, mode and range of a data set.</p> <p>Solve problems involving mean, median, mode and range.</p> <p>Define and collect categorical discrete and continuous numerical data.</p> <p>Use tally charts and frequency tables including intervals to organize primary and secondary data.</p> <p>Draw and interpret pictograms, vertical and horizontal bar charts, line graphs.</p> <p>Define and construct pie charts.</p> <p>Read and interpret pie charts.</p>	1 ½

Distance/Speed/Time	Define and calculate average speed.	1
Sets	<p>Define and identify proper and improper subsets of given sets</p> <p>Identify and use the following symbols: \subset is a proper subset of</p> <p>$\not\subset$ is not a proper subset of</p> <p>\subseteq is a proper or improper subset of</p> <p>$\not\subseteq$ is not a proper nor improper subset of</p> <p>List all the subsets of sets with up to four elements.</p> <p>Show that the formula 2^n (where n is the number elements in a set) can be used to calculate the total number of different subsets for a given set.</p> <p>Define and identify proper and improper subsets of given sets</p> <p>Identify and use the following symbols: \subset is a proper subset of</p> <p>$\not\subset$ is not a proper subset of</p> <p>\subseteq is a proper or improper subset of</p> <p>$\not\subseteq$ is not a proper nor improper subset of</p> <p>List all the subsets of sets with up to four elements.</p> <p>Show that the formula 2^n (where n is the number elements in a set) can be used to calculate the total number of different subsets for a given set.</p> <p>Draw Venn diagrams to illustrate sets and the relationship between two sets.</p> <p>Draw, shade and use Venn diagrams to determine unions and intersections of two sets.</p>	1 ½

	Read and interpret Venn diagrams showing cardinal numbers for up to three sets.	
Transformation & Symmetry	<p>Identify and draw reflections.</p> <p>Identify and draw all the lines of symmetry in a given shape.</p> <p>Define rotation</p> <p>Create rotations of 90° and 180° clockwise and anticlockwise about a given point.</p> <p>Complete a shape so that a given line is the axis of symmetry.</p> <p>Complete a shape so that given horizontal and vertical lines are both axes of symmetry.</p>	1
Polygons & Solids	<p>Identify the nets of common solid shapes.</p> <p>Draw nets and make cubes, cuboids, cylinders and cones.</p> <p>Identify the nets of prisms and pyramids.</p> <p>Make pyramids and prisms from nets.</p> <p>Determine the number of faces, vertices and edges of prisms and pyramids.</p> <p>Discover Euler's formula for prisms and pyramids.</p>	1

**Department of Education
National Pacing Guide: Grade 9
Mathematics
Junior High School (2022-2023)**

Term 1

Grade 9	Objectives	12 weeks
Number Theory	<p>Cubes and cube roots. Use prime factorization to find cube roots.</p> <p>Use associative and commutative properties of addition and multiplication and the distributive property over whole numbers</p> <p>Solve problems using H.C.F./ G.C.F., L.C.M, square roots and cube roots.</p>	2
Fractions	<p>More addition, subtraction, multiplication and division of up to three fractions and/or mixed numbers and two operations.</p> <p>More problem solving involving Addition, subtraction multiplication and division of up to three fractions and two operations.</p> <p>Locate/graph points on a number line. More addition, subtraction, multiplication and division of up to three fractions and/or mixed numbers and two operations.</p> <p>More problem solving involving addition, subtraction multiplication and division of up to three fractions and two operations.</p> <p>Locate/graph points on a number line.</p>	2 ½

Decimals	<p>Decimal place value: billions to millionths.</p> <p>Add, subtract, multiply and divide decimals.</p>	2
Percentages/Consumer Math	<p>Percents greater than 100 and less than 1.</p> <p>Convert between common fractions, decimals and percents.</p> <p>Review expressing one quantity as a percentage of another.</p> <p>Review Calculating a percentage of a number or quantity</p> <p>Use $I = \frac{PRT}{100}$ to calculate interest, rate, time or principal.</p> <p>Loans and investments.</p> <p>Calculating wages/salaries, commission, bonuses and deductions, hire purchase.</p> <p>Calculating taxes and exchange rates</p> <p>Calculating the amount due on telephone and electricity bills, given the necessary information.</p>	4
Coordinate Geometry	<p>Construct/Complete table of values for a linear function.</p> <p>Graphing lines from a table of values, including rational coordinates.</p>	1 ½

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Term 2

Grade 9	Objectives	13 Weeks
Decimals	<p>Decimal place value: billions to millionths.</p> <p>Add, subtract, multiply and divide decimals.</p>	2
Percentages/Consumer Math	<p>Percents greater than 100 and less than 1.</p> <p>Convert between common fractions, decimals and percents.</p> <p>Review expressing one quantity as a percentage of another.</p> <p>Review calculating a percentage of a number or quantity.</p> <p>Use $I = \frac{PRT}{100}$ to calculate interest, rate, time or principal.</p> <p>Loans and investments.</p> <p>Calculating wages/salaries, commission, bonuses and deductions, hire purchase.</p> <p>Calculating taxes and exchange rates</p> <p>Calculating the amount due on telephone and electricity bills, given the necessary information.</p>	2
Geometry	<p>Define and identify adjacent angles and vertically opposite angles.</p> <p>Define and identify angles formed by parallel lines and a transversal: corresponding angles, alternate angles, co-interior angles.</p> <p>Identify and determine vertically opposite and adjacent angles.</p> <p>Identify and determine angles formed by parallel lines and a transversal –corresponding angles, Alternate angles, co-interior angles.</p>	1 ½

	<p>Determine missing Adjacent complementary and adjacent supplementary angles.</p> <p>Construct and bisect angles of 60° and 90°.</p> <p>Construct triangles given: (1) One side and two angles (2) Two sides and an angle. Three sides including equilateral.</p>	
Coordinate Geometry	<p>Construct/complete table of values for a linear function.</p> <p>Graphing lines from a table of values, including rational coordinates.</p>	1 ½
Symmetry/Transformation	<p>Identify and draw reflections in the x-axis, y-axis and horizontal/vertical lines.</p> <p>Recognize and draw lines of symmetry of shapes in the Cartesian plane.</p> <p>Identify rotations about the origin. Define and identify translations.</p> <p>Describe the movement of a shape under translation</p> <p>Translate objects given the description of the movement.</p> <p>Complete a shape so that the x-axis, y-axis or a given horizontal or vertical line is the axis of symmetry.</p> <p>Complete a shape in the Cartesian plane so that the x-axis and y-axis or given horizontal and vertical lines are both axes of symmetry.</p>	1
Measurement/Mensuration	<p>Converting between metric units of length, mass and capacity.</p> <p>Problem solving involving 12-hr and 24-hr time.</p> <p>Reading schedules</p> <p>Problem solving involving elapsed time.</p> <p>Converting from degrees Fahrenheit to degrees Celsius and vice versa.</p>	2

	<p>Apply the formula for area of circle given the radius or the diameter. Include problems with semi-circles and quadrants.</p> <p>Apply the formula for computing the area of a trapezium.</p> <p>Calculate areas of borders including determining missing lengths.</p> <p>Calculate the perimeter and area of compound shapes composed of rectangles, triangles, parallelograms trapeziums and circles.</p> <p>Define surface area.</p> <p>Calculate the surface area of cubes and cuboids</p> <p>Compare and contrast the difference between volume and capacity</p> <p>Define litre</p> <p>Calculate the capacity of containers that are cubes and cuboids.</p> <p>Converting cubic units and litres.</p>	
The Circle	<p>Define and identify parts of a circle:</p> <ul style="list-style-type: none"> • Centre • Radius • Diameter • Circumference • Arc • Chord • Quadrant • Semi-circle • Sector Segment 	2
Algebra	<p>Translate/write/create algebraic expressions with brackets.</p> <p>Translate/write/create algebraic equations with brackets.</p> <p>Identify expressions that can be simplified by collecting like terms.</p>	1

	<p>Multiply and divide monomials without powers.</p> <p>Multiply and divide monomials by expanding powers.</p> <p>Discover and apply the laws of indices for multiplying and dividing powers of the same base. (Constant and variable bases and natural number exponents).</p> <p>Evaluate algebraic expressions and formulae by substituting rational numbers for symbols.</p> <p>Expanding products and collecting like terms to simplify expressions.</p> <p>Identifying factors of monomials to determine the H.C.F.</p> <p>Factoring simple binomials using the H.C.F.</p> <p>Add and subtract algebraic fractions with constant and variable denominators.</p> <p>Multiplication and division of algebraic fractions with monomial numerators and denominators</p> <p>Review solution of simple linear equations involving brackets and equations with variables on both sides.</p> <p>Use linear equations to solve word problems.</p> <p>Change the subject of simple formulae with no more than two operations and the subject appearing once.</p> <p>Translating English phrases to inequalities and vice versa.</p> <p>Describe and interpret sets of real numbers using inequality symbols. Solving simple linear inequalities involving one operation.</p> <p>Illustrate the solution set on the number line.</p> <p>Graphing simple inequalities in the Cartesian plane.</p>	
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Department of Education
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Mathematics
Junior High School (2022-2023)

Term 3

Grade 9	Objectives	7 Weeks
Ratio & Proportion	Define unit rate Determine unit rates Problem solving involving quantities that are directly proportional Define rate Identify common rates Problem solving involving quantities that are indirectly proportional	2
Distance/Speed/Time	Interpret travel and conversion graphs.	1
Sets	Define and identify Equal and Equivalent sets. Define, identify and determine Complements of sets that are subsets of given universal sets. Define, identify, and determine unions and intersections of two sets. Draw Venn diagrams to illustrate up to two sets that are subsets of a given universal set. Draw, shade and Use Venn diagrams to determine complements of sets, unions, and intersections of two sets. Draw and use Venn diagrams to solve simple problems involving universal sets that have one or two subsets.	1
Probability & Statistics	Distinguish between Experimental and Theoretical Probabilities. Compare experimental and theoretical probabilities for the following experiments:	2

	<p>tossing a coin, rolling a die selecting/drawing a letter/number/object from a set of letters/numbers/objects, spinning a spinner.</p> <p>Drawing tables to represent possibility spaces for the following experiments: tossing two coins, rolling a pair of dice, selecting/drawing letters/ numbers/ objects from two sets of letters/ numbers/ objects, tossing a coin twice, rolling a die twice, spinning a spinner twice, tossing a coin and rolling a die, etc.</p> <p>Determining probabilities from tables representing probability spaces.</p> <p>Interpret, select and draw an appropriate type of graph to display data.</p> <p>Calculate mean, median, mode and range from a set of data displayed in an ungrouped frequency table.</p> <p>Determine the modal interval and the interval containing the median from a grouped frequency table.</p>	
Polygons & Solids	<p>Define an exterior angle of a polygon.</p> <p>Identify that adjacent interior and exterior angles are supplementary.</p> <p>Informally prove that an exterior angle of a triangle is the sum of the remote interior angles.</p> <p>Informally prove that the sum of the exterior angles of any triangle and any quadrilateral is 360°</p> <p>Determine the size of missing angles of triangles and quadrilaterals.</p> <p>Identify the nets of platonic solids.</p> <p>Determine the number of faces, vertices and edges of platonic solids.</p> <p>Make platonic solids from nets.</p> <p>Verify that Euler's formula holds for platonic solids.</p>	1