



**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCES SECTION  
AGRICULTURAL SCIENCE UNIT**

**NATIONAL PACING GUIDE  
AGRICULTURAL SCIENCE  
SENIOR HIGH SCHOOL**

**GRADES10-12**

**ACADEMIC YEAR 2022 – 2023**

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 10**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 1 – Week 2</b>	<b>CLIMATIC INFLUENCES ON AGRICULTURAL PRACTICES</b>	1. Define the term weather. 2. Define the term climate. 3. Distinguish the differences between climate and weather. 4. Explain the weather patterns of The Bahamas.	Agricultural Science for The Caribbean Persad bk. 1  Caribbean Agricultural Science A. I. Henry bk. 1  Meteorological Station Report, Newspapers-Guardian, Tribune  The Bahamas-F.C. Evans and R.N. Young	4 Hours	Construction of rain gauge. Construction and reading of thermometer and wind pane.  View graphs-showing weather patterns in The Bahamas. Discuss effects on agriculture.  Visit well field at Prospect Ridge or in your community. Report Observation.  Read and record the daily temperature of shade houses at different points in time during the day.
<b>Week 3</b>	<b>CLIMATIC INFLUENCES ON AGRICULTURAL PRACTICES</b>	5. Describe the effect of climate on: -soil types -availability of fresh water for agriculture (sources) -formation of water lenses in the Pine Barren and Coppice areas.	Junior Secondary Agriculture for The Caribbean. bk. 1  Agricultural Science for the Caribbean. bk. 1	2 Hours	Research climate effects on pine barren and coppice areas.

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 10**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 4</b>	<b>CLIMATE INFLUENCES ON AGRICULTURAL PRACTICES (Cont'd)</b>	6. Explain why some islands are suited for large scale agricultural practices	Department of Agriculture Agricultural Science bk. 3	2 Hours	Visit large scale farms in your community. Report observations.  Research report
<b>Week 4</b>	<b>CLIMATE INFLUENCES ON AGRICULTURAL PRACTICES (Cont'd)</b>	<b>Unit Test</b>		1 Hour	
<b>Week 5 –Week 6</b>	<b>LAND USE</b>	1. Identify the various systems of farming.  2. Describe the various systems of farming.  3. Explain the advantages and disadvantages of each farming system.	Junior Secondary Agriculture for The Caribbean bk. 3 Mohammed and L. Ferdinand  Agricultural Science for The Caribbean bk. 3- Persad  Agricultural Science bk. 3	4 Hours	Field trips to sites showing the different systems of farming. Report observations.  View video showing farming systems, posters and pictures of various farming systems and design a plan of a farming system.
<b>Week 6</b>	<b>Land Use</b>	<b>Unit Test</b>		1 Hour	

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 10**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 7</b>	<b>AGRICULTURAL DEVELOPMENT IN THE BAHAMAS</b>	1. State government policies relative to agricultural development  2. Identify programmes and incentives which support government policies	Information Unit, The Department of Agriculture  <a href="http://www.bahamas.gov.bs/agriculturemarine">http://www.bahamas.gov.bs/agriculturemarine</a>	2 Hours	Project (s) using research methods  Interview local farmers to determine their knowledge of Government policies relative to agriculture. Report findings.
<b>Week 8</b>	<b>AGRICULTURAL DEVELOPMENT IN THE BAHAMAS</b>	3. Identify the difficulties facing agricultural development to include; -land distribution and tenure -underutilized and improperly utilized lands -labor (attitude) -unavailability of skilled labor -underutilization of technical officers	Information Unit, The Department of Agriculture	2 Hours	Conduct survey to determine how many farmers own the land that is properly utilized. Report findings.  Interview Extension Officers from the Ministry of Agriculture, BAMSI and BAIC. Report findings.

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 10**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 9 – Week 10</b>	<b>AGRICULTURAL DEVELOPMENT IN THE BAHAMAS (Cont'd)</b>	4. Identify the difficulties facing agricultural development to include; -lack of proper infrastructure (e.g.) (drainage, roads, irrigation, water) -harvesting, storage, marketing, distribution, transportation, pricing, mechanization, competition with imported items.	Science Secondary Agricultural Science- O-Akinsanmi  Caribbean Agricultural Science bk. 1 A. I. Henry.  Extension officer, packing house personnel, administrators, resource personnel from Ministry of Agricultural/Fisheries	4 Hours	Discussion on how to improve farming in The Bahamas.  Project study through interviews with farmers, extension officers, administrators. Report findings
<b>Week 10</b>	<b>AGRICULTURAL DEVELOPMENT IN THE BAHAMAS (Cont'd)</b>	<b>Unit Test</b>		1 Hour	

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 10**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 11</b>	<b>PLANT SCIENCE</b>	1. Classify plants according to: -structure -life span -growth habits -nature and utilization of the products	Caribbean Biology  -Caribbean Agricultural Science bk. 1 A. I. Henry  -Junior Secondary Agriculture for the Caribbean- Ferdinand and Mohammed bk. 2	2 Hours	Collect plants/seeds; Create a chart to classify them according to structure life span, growth habits, nature and utilization of products.
<b>Week 12</b>	<b>PLANT SCIENCE</b>	2. Describe the structure of dicot and monocot plants.  3. State the functions of major parts of the plant.	Biology for life- M.B.V Roberts. Caribbean Biology	2 Hours	Observe the germination and growth of corn and peas. Record observation.  Collect monocot and dicot flowers. Observe and report differences.
<b>Week 13-Week 14</b>	<b>PLANT SCIENCE</b>	4. Identify and define the processes occurring in plants to include transpiration, translocation, photosynthesis, pollination, fertilization, absorption, tropism	Biology for life- M.B.V Roberts. Caribbean Biology	4 Hours	Carry out experiments involving some plant processes. Report observations

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 10**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Weeks 15 -Week 14</b>	<b>PLANT SCIENCE (Cont'd)</b>	5. Identify types of fruits.  6. Describe the structure of fruits and seeds.  7. State the functions of the parts of fruits and seeds.	Caribbean Agricultural Science bk. 1 A. I. Henry	4 Hours	Collect and classify fruits into groups.  Dissect seeds and fruits to show parts (cross-section and longitudinal). Observe and discuss.  Make seed chart.
<b>Week 15</b>	<b>PLANT SCIENCE (Cont'd)</b>	8. State the conditions necessary for germination to occur	Biology for Life  Agricultural Science for The Caribbean.  Agricultural Science bk. 1	2 Hours	Germination various types of seeds. Count and evaluate germination percentage. Experiments involving the factors/conditions necessary for germination. Do control experiments also.
<b>Week 16</b>	<b>PLANT SCIENCE (Cont'd)</b>	9. Identify the biological agents which affect the healthy growth of plants.	A. I. Henry bk. 1, Persad bk. 1. Persad bk. 3	2 Hours	Collection and identification of weeds and diseased plants. Collect, observe and identify insect damaged plants.

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 10**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 17 – Week 18</b>	<b>PLANT SCIENCE (Cont'd)</b>	10. Define the term weed.  11. List the major local types of weeds.  12. State the effects of weeds on crops.  13. State the methods used to control weeds.	Technical officers, Department of Agriculture.  A. I. Henry bk. 1	4 Hours	Identify local weeds in school garden- Observe flowers leaves and roots. Demonstrate methods to control weeds.  Investigate other methods used to control weeds.
<b>Week 19 – Week 20</b>	<b>PLANT SCIENCE (Cont'd)</b>	14. Define the term pest.  15. State the major local types of pests.  16. State the effect of pests on crops.  17. State the methods of pests control	Agricultural Science for the Caribbean. bk. 3	4 Hours	Collection and classification of pests according to their feeding patterns (how they attack the plants)  Watch a YouTube video on pests and classify them according to their mouth parts and how they feed on plants  Make chart showing harmful and useful insects



**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 10**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 21</b>	<b>PLANT SCIENCE (Cont'd)</b>	18. Define the term microbes.  19. List the different types of microbes.  20. Identify signs and symptoms of diseases caused by microbes.  21.State the methods used to control microbes.	Junior Secondary Agriculture for The Caribbean bk. 3	2 Hours	Make chart showing crops attack by different microbes.          Set up experiments utilizing different methods of control for microbes. Report Findings
<b>Week 21</b>	<b>PLANT SCIENCE (Cont'd)</b>	<b>Unit Test</b>		1 Hour	

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 10**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 22</b>	<b>ANIMAL HUSBANDRY</b>	1. Define the term husbandry.  2. State the major uses of livestock.  3. Define the terms ruminants and non-ruminants.  4. Define the term poultry.	Ralph Persad bk. 1, 2, and 3  Persad bk. 1, 2, and 3	1 Hour	Make a chart to show use of livestock and products.  Match animal products with animal sources.
<b>Week 23</b>	<b>ANIMAL HUSBANDRY</b>	1. State the characteristics of different breeds of livestock.  2. Describe the structure of the digestive system of a ruminant and non-ruminant.  3. Differentiate between the two digestive systems.	A. I. Henry bk. 1 and 11 Slides/Video showing various breeds.  A. I. Henry bk. 1  Jr. Agricultural Science bk. 3	2 Hours	Visit a livestock farm in your area. Identify the characteristics of breeds of livestock on the farm. Report findings.  Draw and label diagrams of the digestive system of a ruminant and non-ruminant.

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 10**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 24</b>	<b>ANIMAL HUSBANDRY (Cont'd)</b>	4. State the functions of the parts of the digestive system.  5. Describe the breakdown of cellulose during the digestive process.	Ralph Persad bk. 2 A.I. Henry bk 1  A.I. Henry bk.1  Agricultural Science, A Course for Secondary Schools in the Caribbean bk. 3	2 Hours	Compare the digestive systems of ruminants, nonruminants, and poultry. Note the parts that are alike and those that are different.  Trace the path of cellulose in the digestive system of a ruminant animal. Describe the breakdown and the digestive process.
<b>Week 25</b>	<b>ANIMAL HUSBANDRY (Cont'd)</b>	6. Identify the sources of food.  7. State the role of feed in animals for a ruminant and non-ruminant	Ralph Persad bk. 2 A.I. Henry bk 1  A.I. Henry bk.1	2 Hours	Collect samples and identify local foods used to feed animals.  Research sources of food for livestock. Identify its nutritional content. Complete a report.
<b>Week 25</b>	<b>ANIMAL HUSBANDRY (Cont'd)</b>	<b>Unit Test</b>		1 Hour	

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 10**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 26</b>	<b>CULTIVATION AND HARVESTING OF A FIELD CROP</b>	3. Select planting materials for propagating vegetable plants.	Agricultural Science bk. 1 Longman	2 Hours	Collect seeds of tomato, broccoli, cabbage, sweet pepper and onion seeds From the seeds collected.  a. select a dozen seeds from each type for use as propagating material  b. state and record the factors considered in selecting the seeds
<b>Week 27 – Week 28</b>		4. Cultivate two of the following tomato, broccoli, cabbage, sweet pepper or onion.	Agricultural Science for the Caribbean bk. 2	tomato – 60-100 days broccoli 70 – 100 days cabbage 90– 180 days sweet pepper 60– 90 days onion – 100 days	Outline and follow the steps to cultivate tomatoes, broccoli, cabbage, sweet pepper or onions. Journal each day.
<b>Week 29</b>	<b>CULTIVATION AND HARVESTING OF A FIELD CROP</b>	<b>Unit Test</b>		1 Hour	

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 1</b>	<b>PLANT SCIENCE</b>	1. Define reproduction in plants.  2. State the types of plant reproduction  3. Define asexual and sexual reproduction.  4. State the advantages and disadvantages of sexual and asexual reproduction.	Caribbean Biology  Biology for Life	2 Hours	Create a chart. List vegetable plants and fruit trees that can be grown sexually, asexually or both.     Research advantages and disadvantages of sexual and asexual reproduction. Write a report.
<b>Week 2</b>	<b>PLANT SCIENCE</b>	5. Define pollination to include self, cross and artificial pollination.     6. State the agents of pollination to include wind, water, man, birds, and insects.	Junior Secondary Agriculture for The Caribbean Mohammed and Ferdinand bk. 1	2 Hours	Practice hand pollination (eg). Pumpkin.  Collect and classify plants based on their type and method of pollination.  Identify and examine plants pollinated by the mentioned agents. Report findings.

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 2</b>	<b>PLANT SCIENCE (Cont'd)</b>	6. Describe the types of pollination.	Agricultural Science bk. 1	2 Hours	Research ways to demonstrate how pollination occurs.  Examine wind pollinated flowers using hand lens and record observation.
<b>Week 3</b>	<b>PLANT SCIENCE (Cont'd)</b>	7. Describe the process of fertilization and the formation of fruits and seeds.  8. Describe the methods of parachute, explosive, dispersal of seeds and fruits.	Ralph Persad bk. 1  Biology for Life	2 Hours	Work sheet.  Observe and examine seeds and fruits to determine how they are adopted for dispersal. Report findings.
<b>Week 3</b>	<b>PLANT SCIENCE (Cont'd)</b>	<b>Unit Test</b>		1 Hour	

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
Week 4	PLANT HUSBANDRY	<p>1. State two types of asexual reproduction to include natural and artificial.</p> <p>2. Name the types of natural asexual reproduction giving examples.</p> <p>3. Describe the different types of natural asexual reproduction.</p>	<p>Agricultural Science bk. 1</p> <p>Agricultural Science A Course for Secondary Schools in the Caribbean Longman bk. 2</p> <p>Persad bk. 3 A. I. Henry bk. 1 Jr. Secondary Agriculture for the Caribbean 3 I. Mohammed and L. Ferdinand</p>	2 Hours	Collect and classify plant parts based on propagative methods.
Week 5	PLANT HUSBANDRY	<p>4. Select planting material to propagate plants using natural sexual reproduction</p> <p>5. Propagate plants from rhizomes, suckers, corms, bulbs, tubers or runners</p>	<p>Persad bk. 3 A. I. Henry bk. 1 Jr. Secondary Agriculture for the Caribbean 3 I. Mohammed and L. Ferdinand</p>	<p>2 Hours</p> <p>Ongoing practical 6-10 weeks</p>	Propagate plants using natural asexual reproduction. Make observations of growth. Record observations

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 6 – Week 7</b>	<b>PLANT HUSBANDRY</b>	6. Name the types of artificial asexual reproduction or vegetative propagation.  7. Describe the different types of vegetative reproduction.  8. State the importance of sexual and asexual methods of propagation to farmers.  9. Propagate plants using stem cuttings.	Ralph Persad bk. 2	4 Hours           Ongoing practical 6-10 weeks	Propagate plants using artificial asexual or vegetative propagation. Make observations of growth. Record observations  Invite personnel's to give demonstration. Record observations  Research the importance of sexual and asexual propagation. Record research and prepare an Oral presentation.
<b>Week 7</b>	<b>Unit Test</b>			1 Hour	



**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 8</b>	<b>NURSERY OPERATIONS</b>	1. Identify the characteristics of suitable planting materials.  2. Identify suitable planting medium and prepare potting materials.	Jr. Secondary Agriculture for the Caribbean bk. 3  Jr. Secondary Agriculture bk. 2 Persad bk. 2  Caribbean Agriculture Science A. I. Henry.  Ralph Persad bk. 2	2 Hours	Select and prepare planting materials.  Prepare planting medium using various materials in appropriate ration.
<b>Week 9</b>	<b>NURSERY OPERATIONS</b>	3. List the components of seeds.  4. Define viability of seeds.  5. Define viability testing.  6. List the factors which influence the viability of seeds.	Caribbean Agriculture Science A. I. Henry.  Ralph Persad bk. 2	2 Hours	Carry out an experiment to test seeds for viability. Record observation.  Plant seeds in different medium using different variables.  Observe then workout percentage of viability.

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 10</b>	<b>NURSERY OPERATIONS (Cont'd)</b>	7. List factors used to determine planting distance to include root type, tree and plant type.  8. Transplant seedlings by measuring planting distance within and between rows of crops.	Agricultural Science for the Caribbean bk2 and 3 Ralph Persad.  Agricultural Science A Course for Secondary Schools in the Caribbean bk. 1	2 Hours	Use a chart to classify planting distance based on root type, tree/plant type  Transplant and thin out seedlings. Transplant seedlings by measuring the planting distance within and between rows of crops
<b>Week 11</b>	<b>NURSERY OPERATIONS (Cont'd)</b>	9. Discuss the importance of record keeping in a nursery operation.  10. List the types of records that are used to include crop, pest control, financial and a diary.	Agricultural Science A Course for Secondary Schools in the Caribbean bk. 2	2 Hours	Create a crop or farm diary to keep record of daily procedures.  Use the internet to find free electronic forms for each type of record discussed. Explain how it can be used at home or school.
<b>Week 12</b>	<b>NURSERY OPERATIONS (Cont'd)</b>	11. Describe the importance of a good irrigation system to nursery operation.  12. Select Irrigation method appropriate for nursery operation.	Agricultural Science for the Caribbean bk 2 Ralph Persad.	2 Hours	Install and operate an irrigation system.

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 13-Week 14</b>	<b>PLANTS PROTECTION (CHEMICAL CONTROL)</b>	1. State the advantages and disadvantages of the use of chemicals to the environment.  2. Name the active ingredients used in most chemicals.  3. Identify the formulation of some chemicals.  4. List the different groups of chemicals based on their mode of operations that is how they work.	Persad bk. 3 Resource personnel from Ministry of Agriculture, Pest Control Agencies.  Agricultural Science bk.2	4 Hours	Demonstrated and practice various control methods.  Visit farm store and observe different pesticide formulations. Examine labels on pesticides. Classify chemicals based on the mode of operation.

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 15</b>	<b>PLANTS PROTECTION (CHEMICAL CONTROL)</b>	<p>5. Describe the precautionary measures that should be taken using agricultural chemicals</p> <p>6. Explain how chemicals can be safely stored and disposed of properly.</p> <p>7. Create an awareness of the importance of following instructions which accompany chemicals.</p>	Agricultural Science bk. 2	2 Hours	<p>Students will assemble, operate and take care of spraying equipment.</p> <p>Demonstrate the safe handling, storage and disposal of agricultural chemicals.</p> <p>Prepare mixtures of chemicals according to directions given.</p> <p>Compose a PSA to create an awareness of the importance of following instructions which accompany chemicals.</p>
<b>Week 16</b>	<b>PLANTS PROTECTION (CHEMICAL CONTROL)</b>	<p>8. Identify and list some of the signs and symptoms of poisoning by chemicals.</p> <p>9. List the methods of emergency treatment for chemical poisoning</p>	Agricultural Science bk. 2		Research first aid procedures for pesticide poisoning. Report findings.
<b>Week 16</b>	<b>Unit Test</b>			1 Hour	

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 17 - 18</b>	<b>ANIMAL HUSBANDRY (REPRODUCTION IN ANIMALS)</b>	1. Classify the structure and function of male and female reproductive systems.  2. Identify heat signs in ruminants and non-ruminants.  3. Compare heat signs in ruminants and non-ruminants.	Persad bk. 2 A. I. Henry bk. 1   Jr. Secondary Agriculture for the Caribbean bk. 3 Persad bk. 3	4 Hours	Draw and label the male and female reproductive system of a farm animal.  View a video to observe heat signs in farm animals. <ul style="list-style-type: none"> <li>• List and explain heat signs.</li> <li>• Compare heat signs in ruminants and non-ruminants.</li> <li>• Write a report.</li> </ul>
<b>Week 19</b>		4. Define the term “breeding”  5. List factors in selecting animals for breeding.  6. Define fertilization.  7. Define pregnancy	Jr. Secondary Agriculture for the Caribbean bk. 3  Persad bk. 3	2 Hours	Visit farm to see demonstration of artificial insemination. See animals in heat, pregnant animals. Make notes on behavior and other changes. Write a report.  Compare breeding traits of different breeds of cattle and pigs.

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 20</b>	<b>ANIMAL HUSBANDRY (REPRODUCTION IN ANIMALS) (Cont'd)</b>	8. Define artificial insemination.  9. State the advantages and disadvantages of artificial insemination.  10. Define and compare gestation periods in farm animals.  11. State and compare the nutritional requirements of pregnant animals.	Agricultural Science A Course for Secondary Schools in the Caribbean.  Raising Pigs Successfully Kathy and Bob Kellogy	2 Hours	Research artificial insemination on the internet. Report on the following. <ul style="list-style-type: none"> <li>• The history of AI</li> <li>• The various domestic livestock species in which it is used.</li> <li>• State the advantages and disadvantages of A.I.</li> </ul>

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 21 –Week 22</b>	<b>ANIMAL HUSBANDRY (REPRODUCTION IN ANIMALS)</b>	<p>12. Identify anatomy and physiology associated with delivery and post-natal care.</p> <p>13. Observe behavior and recognize signs associated with birth.</p> <p>14. Create an awareness of the problems and solutions associated with birth and new-born animals.</p>	<p>Caribbean Agricultural Science- A. I. Henry bk. 1</p> <p>Junior Secondary Agricultural Science for The Caribbean Persad bk. 3</p>	4 Hours	<p>Visit local piggery unit and observe the birth process. Report observations.</p> <p>View video showing birth process. Report observations</p> <p>Create a P.S.A to create an awareness of the problems associated with birth and give solutions.</p>
<b>Week 22</b>	<b>Unit Test</b>			1 Hour	

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 23 –Week 24</b>	<b>FRUIT TREES</b>	1. Explain the steps used in the preparation of land for planting any given type of fruit trees.  2. State the type of maintenance used for fruit trees from the time of sowing to the time of harvesting.  3. Propagate a fruit tree.	Junior Secondary Agriculture Science bk. 3 A. I. Henry bk. 3	4 Hours	Visit a fruit orchard at the time of land preparation and the planting of materials. Observe procedures. Create a report.  Demonstrate the process of land preparation for planting fruit trees.  Demonstrate the process used to maintain fruit trees.  Carry out steps to propagate a fruit tree.
<b>Week 25</b>	<b>FRUIT TREES</b>	3. Define mulching.  4. Describe the different types of mulches to include bark, clipping, and organic material.	Junior Secondary Agriculture Science bk. 3 A. I. Henry bk. 3	2 Hours	Create the various types of mulches and apply to fruit and ornamental plants around school premises.



**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 26</b>	<b>FRUIT TREES (Cont'd)</b>	<p>5. Identify pests and diseases which affect fruit trees,</p> <p>6. State the methods of control for pests and diseases which affect fruit trees.</p> <p>7. Recognize the effects of pests and diseases on plants.</p>	<p>Junior Secondary Agriculture for The Caribbean bk. 3</p> <p>Agricultural Science, A Junior Secondary Course for the Caribbean bk. 2</p>	2 Hours	<p>Visit citrus orchard and identify pests and diseases attacking plants.</p> <ul style="list-style-type: none"> <li>• Identify pest</li> <li>• Describe its method of feeding.</li> <li>• Identify diseases.</li> <li>• Describe the effects of pest and diseases on the plant. Write a report</li> </ul>
<b>Week 27</b>		<p>8. Identify fertilizer requirements at different stages of growth of fruit trees.</p> <p>9. Identify the methods and frequency of fertilizer applications of fruit trees.</p>	<p>Junior Secondary Agriculture for The Caribbean bk. 3</p> <p>Agricultural Science, A Junior Secondary Course for the Caribbean bk. 2</p>	2 Hours	Fertilize and maintain fruit and or ornamental plants on school compound.

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 28</b>	<b>FRUIT TREES (Cont'd)</b>	10. State the methods of harvesting, processing and marketing of fruits.  11. Demonstrate steps to harvest, process and market a fruit.	Agricultural Science, A Junior Secondary Course for the Caribbean bk. 2	<b>2 Hours</b>	Harvest a fruit crop. <ul style="list-style-type: none"> <li>Describe harvesting methods</li> <li>Describe post harvesting methods.</li> </ul> Market a fruit crop
<b>Week 29 – Week 30</b>	<b>FRUIT TREES (Cont'd)</b>	12. Define food preservation.  13. Identify and describe methods of food preservation.  14. State the advantages of food preservation.	Human and Social Biology for the Tropics. Food and Nutrition text books	4 Hours	Carry out activities on food preservation in collaboration with the Home Economics Department, using garden produce.  Process a fruit crop (juice, jam, jelly etc.)  Collect samples of locally preserved foods and tabulate preservation procedures.
<b>Week 30</b>	<b>Unit Test</b>			1 Hour	

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 11**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 31</b>	<b>CULTIVATION AND HARVESTING OF A VEGETABLE CROP</b>	3. Select planting materials for propagating vegetable plants.	Agricultural Science bk. 1 Longman	2 Hours	Collect seeds of tomato, broccoli, cabbage, sweet pepper and onion seeds From the seeds collected.  a. select a dozen seeds from each type for use as propagating material  b. state and record the factors considered in selecting the seeds
<b>Week 32 – Week 33</b>	<b>CULTIVATION AND HARVESTING OF A VEGETABLE CROP</b>	4. Cultivate two of the following carrots, beet, cauliflower, kale, Swiss chard.	Agricultural Science for the Caribbean bk. 2	carrots – 70-80 days beet 60 - 80 days cauliflower 90– 150 days Kale 95 days Swish Chard 5-60 days	Outline and follow the steps to cultivate tomatoes, broccoli, cabbage, sweet pepper or onions. Journal each day.
<b>Week 29</b>	<b>CULTIVATION AND HARVESTING OF A FIELD CROP</b>	<b>Unit Test</b>		1 Hour	

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 12**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 1</b>	<b>FARM MECHANIZATION</b>	1. Identify the major parts of a tractor.  2. State the uses of a tractor.  3. Describe the care and maintenance of a tractor.	Persad bk. 2 A.I. Henry bk. 1  Junior Secondary Agriculture for The Caribbean bk. 2	2 Hours	Visit farms and observe tractors in operation. Write a report.  Observe parts of a tractor or implements using a video or visual aids. Make a poster or slide presentation.
<b>Week 2</b>	<b>FARM MECHANIZATION</b>	4. Identify and state the uses of farm implements.  5. Explain the importance of care, storage and maintenance of these implements.	Agricultural Science, A Course for Secondary Schools in the Caribbean. Bk. 1	2 Hours	Demonstrate care and maintenance of farm implements.
<b>Week 2</b>	<b>Unit Test</b>			1 Hour	

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 12**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 3 – Week 4</b>	<b>FARM BUILDINGS</b>	1. List the types of material used for constructing farm buildings.  2. Describe the housing requirements for different classes of livestock.  3. Compare the cost of structures made from different materials.	A. I. Henry bk. 2  Agricultural Science A Course for Secondary Schools in the Caribbean bk.3 Longman	4 Hours	Observation of farm structures/building rabbit hut, goat hut, piggery unit, poultry house, green-house, compost pile. List and compare materials used to build structures.  Read plans and specifications eg. space, shade, ventilation. Design and construct a model of a farm building.
<b>Week 5</b>	<b>FARM BUILDINGS</b>	4. Discuss suitable location for various farm buildings.  5. State the rules and regulations governing farm buildings.  6. List the environmental factors that influence the design of farm structures and site selection including climate, topography, light intensity and soil.	A. I. Henry bk. 2  Agricultural Science A Course for Secondary Schools in the Caribbean bk.3 Longman	2 Hours	Interview a building inspector from the Ministry of Works on the rules and regulations governing farm buildings. Submit report.  Participate in building structures where practicable.
<b>Week 5</b>	<b>FARM BUILDINGS</b>	<b>Unit Test</b>		1 Hour	

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 12**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 6</b>	<b>HORTICULTURE</b>	1. Create designs in landscaping.  2. State the steps used in clearing and preparing the land for landscaping.	Persad bk. 3       See expanded horticulture unit	2 Hours	Visit various places to observe different designs of landscaping. Take photos and create a slide show.  Create a design in landscape by sketch or model.  Practical work based on various designs/sketch/model
<b>Week 7 – Week 8</b>	<b>HORTICULTURE</b>	3. State methods of propagation which can be used to produce plants for landscaping  4. Select, prepare and propagate plants using various propagation methods	Persad bk. 3	4 Hours	Practice methods of propagation using different plants

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 12**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 9</b>	<b>HORTICULTURE</b>	<p>4. Identify and name local plants that can be used in landscaping.</p> <p>5. Describe methods of propagating local plants.</p>	<p>Caribbean Agricultural Science by A. I. Henry bk. 1</p> <p>Bahamas National Trust</p>	2 Hours	<p>Draw a table to show names of plants used in landscaping and ways of propagating them.</p> <p>Propagate local plants using various methods.</p> <p>Carry out practical activities on selected area on school premises, home or in the neighborhood.</p>
<b>Week 10</b>	<b>HORTICULTURE</b>	<p>6. List the activities involved in maintaining a landscaped area.</p> <p>7. Describe the methods used in carrying out these activities.</p>	<p>Caribbean Agricultural Science by A. I. Henry bk. 1</p> <p>Bahamas National Trust</p>	2 Hours	<p>Practice maintenance activities on landscaped area.</p> <p>Watch You tube videos to view activities involved in maintaining a landscaped area. Report on observations</p>

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 12**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 11</b>	<b>AGRICULTURAL ECONOMICS</b>	1. Define the term economics  2. Explain the common terms used in economics  3. State the importance of record keeping with specific reference to production and marketing records for crops, livestock and machinery.	Persad bk. 3 A. I. Henry bk. 2   Persad bk. 1 A. I. Henry bk. 1	2 Hours	Compare predicted performance in terms of expected profits.
<b>Week 12</b>	<b>AGRICULTURAL ECONOMICS</b>	4. Collect and record data in various farm records.  5. Discuss how data is analyzed and used.	Persad bk. 1 A. I. Henry bk. 1	2 Hours	Practice exercise in elementary farm record keeping
<b>Week 13</b>	<b>AGRICULTURAL ECONOMICS</b>	6. Explain financial accounts relating to farming enterprises  7. State the principles and practices of budgeting of a farming enterprise	Persad bk. 3 A. I. Henry bk. 2   Persad bk. 1 A. I. Henry bk. 1	2 Hours	Practice exercise in planning, recording and budgeting exercises.
<b>Week 13</b>	<b>AGRICULTURAL ECONOMICS</b>	<b>Unit Test</b>		1 Hour	



**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 12**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 14</b>	<b>GENETICS</b>	1. State the structure and functions of parts of an animal and plant cell with emphasis on the nucleus.  2. State the importance of the nucleus as it relates to genetics.	Agricultural Science for the Caribbean bk. 2 Ralph Persad,  Biology for life	2 Hours	Observe short video of cells anatomy. Use a chart to differentiate between animal and plant cells.  Draw and label the parts of an animal and plant cell.
<b>Week 15</b>	<b>GENETICS</b>	3. Differentiate between meiosis and mitosis.  5. Discuss the importance of cell division.  6. Explain common terms used in genetic.	Agricultural Science for the Caribbean bk. 2 Ralph Persad,  Biology for life	2 Hours	Create a chart to differentiate between meiosis and mitosis.  Draw and label a diagram showing cell division.
<b>Week 16</b>	<b>GENETICS</b>	7. State and explain the importance of selecting and breeding practices of plants and animals with desirable traits  8. Evaluate the roll of biotechnology in animal and plant production.	Agricultural Science A Course for Secondary Schools in the Caribbean bk. 3	2 Hours	Observe plant cells chromosomes dividing Do simple crosses involving genetics  Discussion on objectives of increased yields and resistant varieties
<b>Week 16</b>	<b>GENETICS</b>	<b>Unit Test</b>		1 Hour	

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 12**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 17 - 18</b>	<b>CULTIVATION AND HARVESTING OF A FIELD CROP</b>	1. Outline the operation and practices involved in field crop production.  2. Explain factors affecting site selection for planting.  3. Explain land clearing and preparation.	Agricultural Science for The Caribbean bk. 1	4 Hours	<ul style="list-style-type: none"> <li>• Construct and prepare a seed box for 20 seedlings. Give the inner dimensions of the box.</li> <li>• Clear and prepare a parcel of land</li> </ul>
<b>Week 19</b>	<b>CULTIVATION AND HARVESTING OF A FIELD CROP</b>	4. Describe how to prepare seed boxes and seed beds  5. Describe the steps in planting a crop.  6. Describe crop care in the field.	Agricultural Science for The Caribbean bk. 1	2 Hours	<ul style="list-style-type: none"> <li>• prepare seed bed</li> <li>• Prepare plot for reception of seedlings.</li> <li>• Give details of spacing and depth of sowing.</li> </ul>

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 12**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 20</b>	<b>CULTIVATION AND HARVESTING OF A FIELD CROP</b>	7. Select planting materials for propagating.	Agricultural Science for The Caribbean bk. 1	<b>2 Hours</b>	Collect seeds of corn, bean, okra and cucumber from the school garden plot or from a nearby farmer. From the seeds collected.  a. select a dozen seeds from each type for use as propagating material  b. state the factors you considered in selecting the seeds
<b>Week 21</b>	<b>CULTIVATION AND HARVESTING OF A FIELD CROP</b>	8. Cultivate one of the following crops: corn, bean, okra, cucumber, sweet pepper, lettuce, etc.	Agricultural Science for The Caribbean bk.	Beans – 55-65 days Cucumbers 50 – 70 days Okra – 60 days Corn – 56 days	Outline and follow the steps to cultivate corn, bean, okra or cucumber crops. Journal each day.

**DEPARTMENT OF EDUCATION  
ARTS AND SCIENCE SECTION  
AGRICULTURAL SCIENCE UNIT  
NATIONAL PACING GUIDE  
GRADE 12**

<b>WEEK</b>	<b>TOPIC/CONCEPT</b>	<b>OBJECTIVES</b>	<b>CURRICULUM LINK</b>	<b>TIME SPAN</b>	<b>ASSESSMENT</b>
<b>Week 22</b>	<b>CULTIVATION AND HARVESTING OF A FIELD CROP</b>	9. Describe four types of irrigation practices,  10. Select irrigation methods appropriate to crop type and soil.	Agricultural Science for the Caribbean bk. 2 Ralph Persad	<b>2 Hours</b>	Prepare a plan for setting up an irrigation system including materials needed and cost.  Set up an irrigation system appropriate to the type of crop growing in your home or school garden.
<b>Week 23</b>	<b>CULTIVATION AND HARVESTING OF A FIELD CROP</b>	11. Discuss the alternative methods of crop cultivation such as green house, hydroponics and aquaponics.  12. List unusual methods of tillage to include zero and minimum and mulch tillage.	Agricultural Science A Course for Secondary Schools in the Caribbean bk. 3 Longman	<b>2 Hours</b>  <b>Ongoing practical 30 - 50 days</b>	Prepare a plan for setting up a hydroponics system including materials needed, cost, labour requirements and location. Present plan.  Grow crops using zero, minimum and mulch tillage. Observe and report outcomes.
<b>Week 24</b>	<b>CULTIVATION AND HARVESTING OF A FIELD CROP</b>	<b>Unit Test</b>		<b>1 Hour</b>	