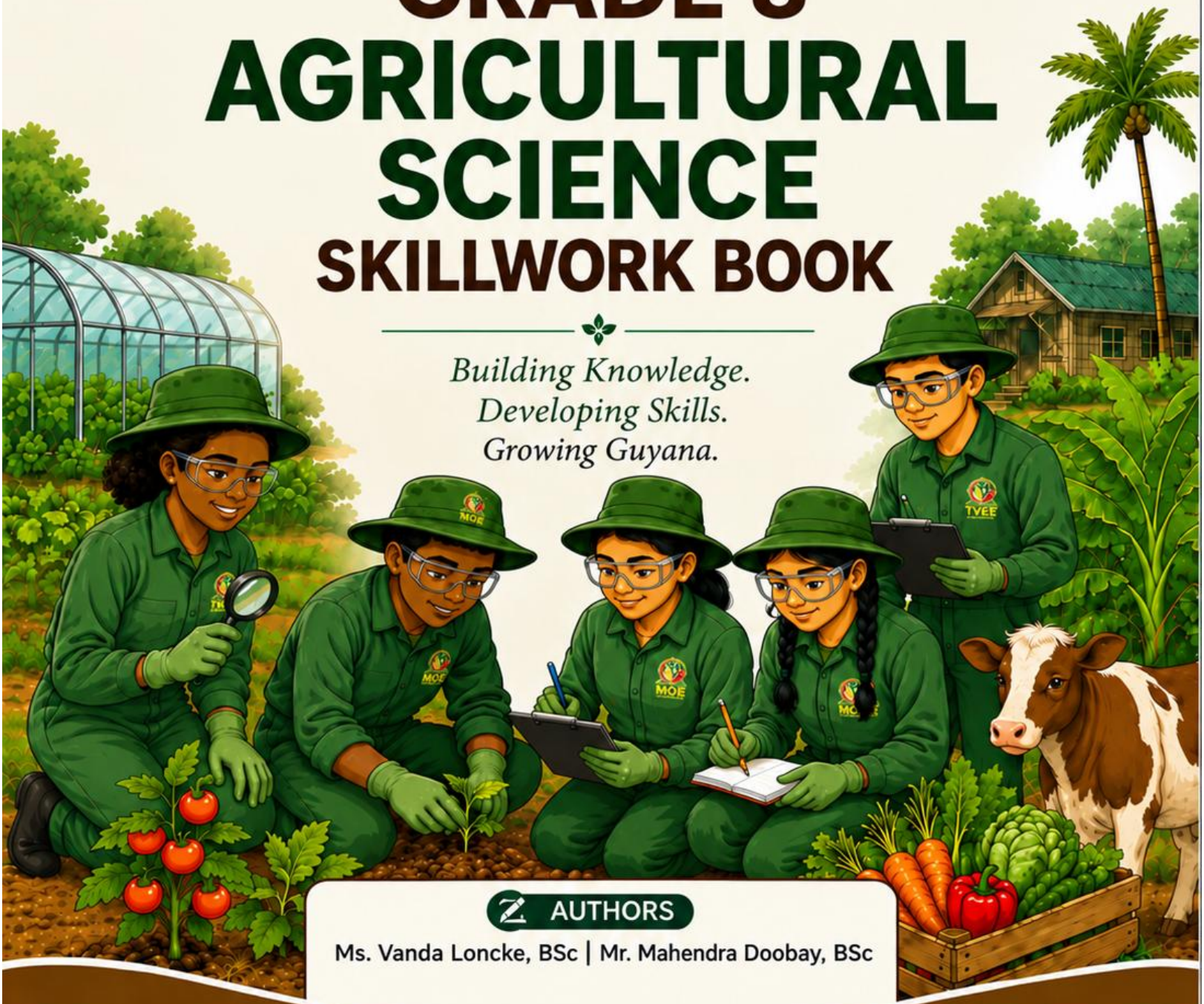
MINISTRY OF EDUCATION

TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING UNIT

GRADE 8 AGRICULTURAL SCIENCE

SKILLWORK BOOK

Building Knowledge.
Developing Skills.
Growing Guyana.



AUTHORS

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HANDS-ON LEARNING | OBSERVATION | COMMUNICATION | INVESTIGATION | PROBLEM SOLVING | COLLABORATION

CO-OPERATIVE REPUBLIC OF GUYANA

MINISTRY OF EDUCATION

GRADE 8 AGRICULTURAL SCIENCE SKILLWORK BOOK

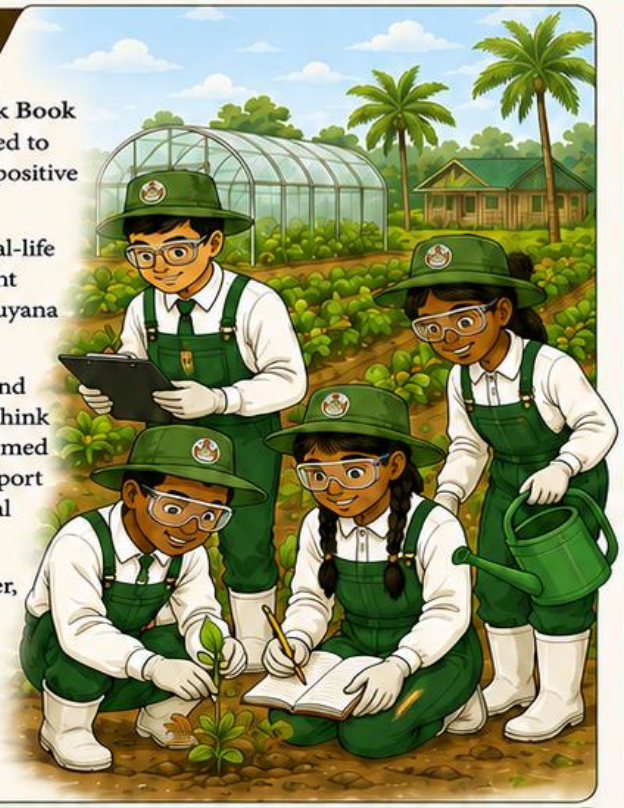
ABOUT THIS BOOK

The Grade 8 Agricultural Science Skillwork Book is a practical, activity-based resource designed to help students develop skills, knowledge and positive attitudes needed for modern agriculture.

It provides engaging activities, visuals, and real-life applications to help you understand important agricultural concepts and practices used in Guyana and around the world.

Through hands-on activities, investigations and problem-solving tasks, you will learn how to think critically, work collaboratively and make informed decisions that can improve food security, support sustainable farming and contribute to national development.

This book encourages you to explore, discover, create and take pride in agriculture — the essence of life and the future of Guyana.



WHAT YOU WILL FIND IN THIS BOOK

- **Practical Activities** that build hands-on agricultural skills.
- **Investigations** that encourage observation, exploration and discovery.
- **Group Tasks** that promote teamwork, communication and leadership.
- **Problem-Solving Challenges** that develop critical thinking.
- **Real-Life Applications** that connect learning to everyday situations and future careers.
- **Career Awareness** that exposes you to opportunities in agriculture and related fields.

AGRICULTURE IS EVERYWHERE!


Provides Food


Creates Jobs


Supports Livestock


Drives the Economy


Protects Our Environment

CORE SKILLS YOU WILL DEVELOP

- Hands-on Learning
- Observation
- Communication
- Investigation
- Problem Solving
- Collaboration



FUN FACT!



Did you know?
Agriculture is the largest employer in Guyana, supporting more than 1 in every 4 people!

> *"Agriculture is not just about growing crops and raising animals; it is about growing the future."*

TEXTBOOK REFERENCE
Agricultural Science for Secondary Schools
Grade 8

WATCH AND LEARN!
Scan the QR code or visit the link to watch helpful videos on agricultural topics.

YouTube Channel
Ministry of Education Guyana
https://www.youtube.com/@ministryofeducationguyana

Building Knowledge. Developing Skills. Growing Guyana.

GRADE 8

AGRICULTURAL SCIENCE SKILLWORK BOOK

CO-OPERATIVE REPUBLIC OF GUYANA
MINISTRY OF EDUCATION

TEACHERS' NOTES

These notes are provided to support you in using the Grade 8 Agricultural Science Skillwork Book effectively in the classroom and on the farm.

ABOUT THIS BOOK

This book is designed to help students learn by doing. The activities, investigations and projects are practical, engaging and linked to their everyday experiences.



Building Knowledge. Developing Skills. Growing Guyana.

1. PURPOSE OF THIS BOOK

This book supports the Agricultural Science curriculum by providing hands-on activities that build knowledge, develop practical skills and encourage positive attitudes towards agriculture, food security and environmental stewardship.

2. HOW TO USE THIS BOOK

- Read each activity carefully before teaching it.
- Introduce the concept using questions and discussion.
- Guide students through the "What To Do" steps.
- Allow students to work individually, in pairs or in groups as indicated.
- Use local examples and resources whenever possible.
- Encourage students to think, observe, record, analyse and present their findings.

3. TEACHING APPROACH

- Use learner-centred methods.
- Encourage participation, teamwork and respect for others' ideas.
- Relate lessons to real-life farm and home situations.
- Promote inquiry, problem solving and critical thinking.

4. RESOURCES

- Use the listed materials or suitable alternatives.
- Use local tools, equipment, and materials where possible.
- Ensure all resources are safe and in good working condition.

5. SAFETY FIRST

- Always review safety rules before any practical activity.
- Ensure students wear appropriate PPE (gloves, boots, goggles, hats, etc.).
- Supervise all practical activities closely.
- Teach students to handle tools, chemicals and equipment responsibly.
- Reinforce hygiene: wash hands, keep the work area clean and dispose of waste properly.

6. ASSESSMENT GUIDELINES

- Use observation, questioning, discussions, checklists and rubrics to assess students.
- Assess both the process and the product.
- Provide feedback that is constructive and encouraging.
- Use the Teacher Assessment pages and rubrics provided in the book.
- Celebrate improvement and effort.

7. INCLUSIVE PRACTICES

- Provide equal opportunities for all students.
- Differentiate tasks where needed.
- Encourage cooperation and respect for diversity.
- Support students with special needs appropriately.

8. CROSS-CURRICULAR LINKS

Link activities to other subjects such as:

- **Mathematics** – measuring, calculating, data handling
- **Science** – experiments, observations
- **Language** – reading, writing, reporting
- **Social Studies** – environment, food security, communities

9. TIPS FOR SUCCESS

- Plan each lesson in advance.
- Prepare materials and the learning environment.
- Encourage students to ask questions.
- Use real-life examples and local context.
- Be patient, positive and a good role model.
- Keep records of students' work and progress.

> "The best way to learn is by doing."



10. RECORD KEEPING

Encourage students to maintain good records in their project sheets and record books. Good records help them to reflect on what they learn and improve.

11. PARTNERSHIPS

Work with parents, farmers, community members, agricultural agencies and TVET institutions to enrich learning experiences.

AGRICULTURE TODAY, A BETTER TOMORROW.

THANK YOU FOR HELPING TO SHAPE YOUNG MINDS AND BUILD A BETTER GUYANA!

TOGETHER WE CAN GROW OUR NATION.

Name: _____

Topic: Selection of Crops

Sub-topic: Factors Influencing Crop Selection



PART 1 – SKILL ACTIVITY

Activity Type:
Group Activity

Time Required:
10 minutes

Tools & Materials:
Worksheet, pencil, coloured pencils

Group Activity
Collaborative

Number of Students per Group:
3 – 5 students

Instructions:

- Read each description of the factors that influence the selection of crops.
- Use the clues to fill in the crossword puzzle.
- Each factor is used once.



PART 2 – VISUAL SKILL ASSESSMENT

Crossword Puzzle

Match each factor to its description.
Write the correct factor in the puzzle.

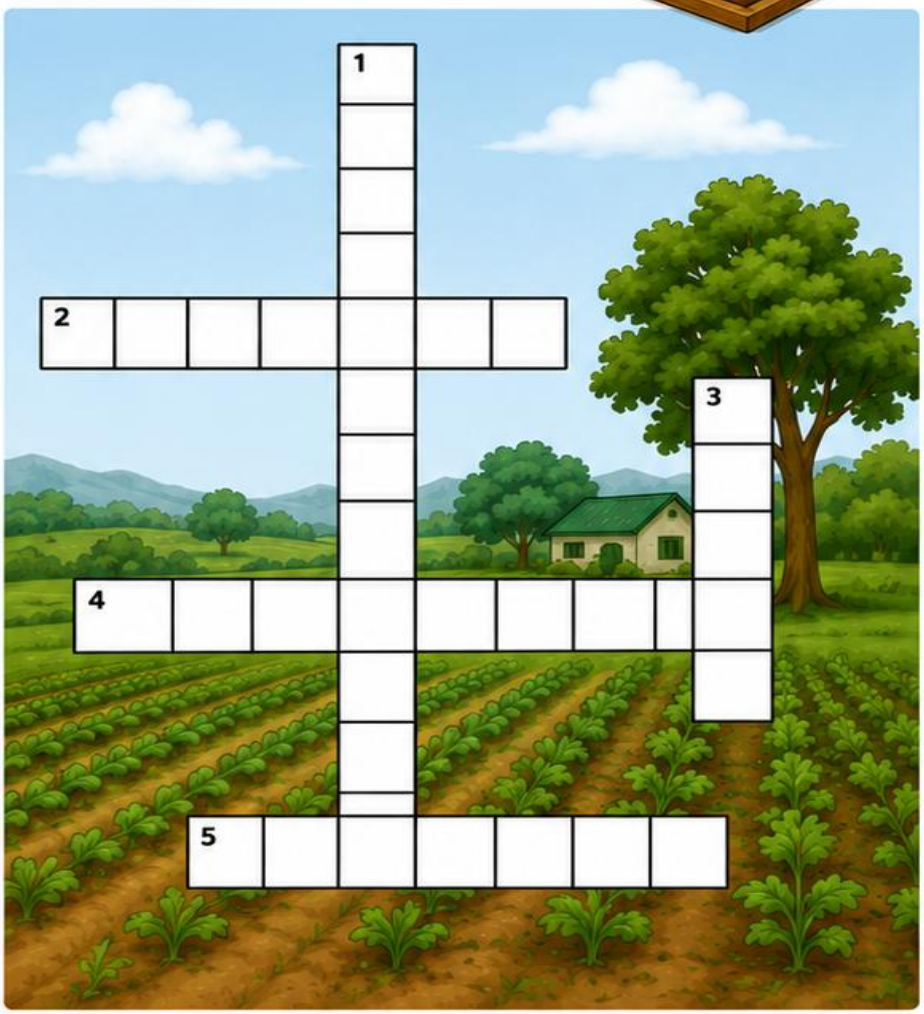
1 This factor includes temperature, rainfall, sunshine and wind. It determines what crops can grow well.

2 This factor refers to the type, fertility, texture and drainage of the soil where crops are grown.

3 This factor is about the availability of people to work on the farm.

4 This factor involves the availability of roads, vehicles and other means of transporting produce to markets.

5 This factor considers money, market demand, prices and the needs of the community.



FUN FACT!



Choosing the right crop for the right place can increase yield, reduce losses and improve farmers' income.

TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools
Grade 8
Book Three
Page 5

Crop selection is a smart decision that leads to healthy crops and successful farming.



Name: _____

Topic: Selection of Crops

Sub-topic: Factors Influencing Crop Selection



PART 1 – SKILL ACTIVITY

SELECTION OF CROPS

FACTORS INFLUENCING CROP SELECTION

ACTIVITY TYPE
Decision Making & Justification

TIME REQUIRED
15 Minutes

GROUP ACTIVITY
3 – 4 Students

MATERIALS NEEDED
- Worksheet
- Pencil / Pen
- Reference book (optional)
- Calculator (optional)

WHAT TO DO
1. Read the farm scenario carefully.
2. Select THREE (3) suitable crops from the the options below.
3. Justify your choices using the factors.

FARM SCENARIO

You are advising a small farmer who owns a 1-hectare farm in a lowland area. The area has plenty of sunshine, moderate rainfall and fertile loamy soil. The farmer wants crops that can grow well, give good returns and have a market.

CROP OPTIONS – CHOOSE THREE (3)

TOMATO	SWEET PEPPER	OKRA	WATERMELON	CABBAGE	PINEAPPLE
					
☐	☐	☐	☐	☐	☐

FACTORS TO CONSIDER

ENVIRONMENTAL FACTORS



ECONOMIC FACTORS



FUN FACT!

Choosing the right crops for your farm can increase your profit, reduce losses and help protect the environment.



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Three

Pages: 157 – 162

Name: _____

Topic: Land Preparation

Sub-topic: Land Preparation Sequence



PART 1 – SKILL ACTIVITY

LAND PREPARATION

LAND PREPARATION SEQUENCE

ACTIVITY TYPE

Sequencing & Ordering

TIME REQUIRED

10 Minutes

INDIVIDUAL ACTIVITY

Work on your own.

MATERIALS NEEDED

- Worksheet
- Pencil / Pen
- Eraser

WHAT TO DO

1. Study the pictures.
2. Arrange the land preparation activities in the correct order before planting.
3. Write numbers 1 to 10 in the boxes below the pictures.

LAND PREPARATION TASK

A farmer is preparing a field to grow cabbage.

The pictures below show the land preparation activities, but they are mixed up.

Arrange the activities in the correct order before planting.



☐



☐



☐



☐



☐



☐



☐



☐



☐



☐

FUN FACT!

Good land preparation improves soil structure, helps roots grow better, saves time and water, and increases your yield!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two

Pages: 3 – 9

Name: _____

Topic: Land Preparation

Sub-topic: Importance of Land Clearing and Laying Out



PART 1 – SKILL ACTIVITY

LAND PREPARATION

IMPORTANCE OF LAND CLEARING AND LAYING OUT

ACTIVITY TYPE

Matching

TIME REQUIRED

10 Minutes

INDIVIDUAL ACTIVITY

Work on your own.

MATERIALS NEEDED

- Worksheet
- Pencil / Pen
- Eraser

WHAT TO DO

1. Study the pictures on the left.
2. Read each benefit on the right.
3. Draw a line from each picture to the correct benefit.

MATCH THE PICTURE TO THE BENEFIT

Draw a line from each picture on the left to the correct benefit on the right.













A. Reduces competition for water, nutrients and sunlight.

B. Makes digging and planting easier.

C. Improves drainage and prevents waterlogging.

D. Creates a safer workplace and reduces accidents.

E. Helps to keep rows straight and spacing uniform.

F. Helps to reduce pests and diseases.

FUN FACT!

Cleaning and laying out your land the right way gives your crops the best start and helps you get bigger and better yields!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two

Pages: 3 – 9

Name: _____

Topic: Land Preparation

Sub-topic: Land Clearing & Laying Out tools and equipment.



PART 1 – SKILL ACTIVITY

LAND PREPARATION

LAND CLEARING & LAYING OUT TOOLS AND EQUIPMENT

ACTIVITY TYPE

Identification & Classification

TIME REQUIRED

25 Minutes

GROUP ACTIVITY

Work in a group of 4 – 5 persons.

MATERIALS NEEDED

- Pictures of tools
- Chart / Worksheet
- Pencil / Pen

WHAT TO DO

1. Identify each tool shown in the table.
2. Tick whether the tool is used for Clearing (C), Laying Out (L), or Both (B).
3. Identify the primary power source for each tool.

TOOL ID & POWER SOURCE CHART

List land clearing tools, categorise by primary use (clearing vs. laying out), and identify each tool's power source (Manual / Animal / Mechanised).

NO.	TOOL (IDENTIFICATION)	PRIMARY USE (TICK ONE)			POWER SOURCE (TICK ONE)		
		CLEARING (C)	LAYING OUT (L)	BOTH (B)	MANUAL	ANIMAL	MECHANISED
1.	 Cutlass / Machete						
2.	 Bush Knife						
3.	 Slasher						
4.	 Hoe						
5.	 Rake						
6.	 Mattock						
7.	 Shovel						
8.	 Hand Fork / Garden Fork						
9.	 Measuring Tape						
10.	 Pegs / Stakes						
11.	 String Line						
12.	 Tractor						

FUN FACT!

Using the right tools saves time, makes work easier, and gives better results. Well-prepared land grows better crops!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two

Pages: 11 – 14

Name: _____

Topic: Land Preparation

Sub-topic: Carry out Land Clearing & Laying Out



PART 1 – SKILL ACTIVITY

LAND PREPARATION

CARRY OUT LAND CLEARING & LAYING OUT

ACTIVITY TYPE

Practical Activity

TIME REQUIRED

2 Periods
(90 Minutes)

GROUP ACTIVITY

Work in a group of 4 – 5 persons.

MATERIALS NEEDED

- Machete / Cutlass
- Rake
- Shovel
- Wheelbarrow
- Measuring Tape
- Pegs / Stakes
- String Line (Garden Line)
- Gloves
- Boots

WHAT TO DO

1. Follow your teacher's demonstration carefully.
2. Work as a group to clear the plot and remove unwanted materials.
3. Lay out the plot using pegs and string lines to create straight, evenly spaced rows.

PRACTICAL ACTIVITY

Perform basic land clearing and laying out in the school garden plot, using garden lines and pegs to create straight, evenly spaced rows.
Teacher demonstrates first, then students carry out the activity.

PROCEDURE

A. LAND CLEARING



1. Cut and clear all weeds, grasses, and bushes.



2. Rake and gather all debris, stones, and rubbish.

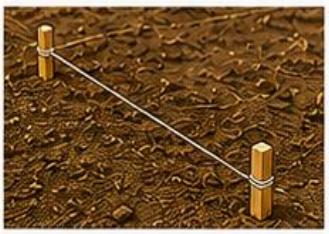


3. Remove all waste from the plot to create a clean, safe workspace.

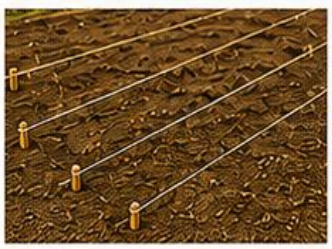
B. LAYING OUT



1. Measure the width of the plot and mark corners with pegs.



2. Stretch the string line tightly between pegs to create straight lines.



3. Mark the rows at equal spacing using the string line and pegs.

FUN FACT!

Well-cleared and properly laid out land makes planting easier, saves time, and helps crops grow better and produce higher yields!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two

Pages: 7 – 10

Name: _____

Topic: Land Preparation

Sub-topic: Carry Out Primary and Secondary Tillage.

PART 1 – SKILL ACTIVITY



LAND PREPARATION

CARRY OUT PRIMARY AND SECONDARY TILLAGE

ACTIVITY TYPE

Matching Activity

TIME REQUIRED

20 Minutes

GROUP ACTIVITY

Work in a group of 4 – 5 persons.

WHAT TO DO

1. Look at the pictures on the left.
2. Read the statements on the right.
3. Draw a line to match each picture with the correct statement.

MATCH THE OPERATION

Skill: Differentiate between primary and secondary tillage.
Draw a line to match each operation on the left with the correct statement on the right.

OPERATIONS

A. PRIMARY TILLAGE



The first tillage operation.
Breaks and turns the soil.

B. SECONDARY TILLAGE



The second tillage operation.
Prepares a fine seedbed.

STATEMENTS

1. Breaks hard soil
2. Makes a fine seedbed
3. First tillage
4. Second tillage
5. Buries weeds
6. Levels soil

FUN FACT!

Proper tillage improves soil structure, increases air and water movement, reduces weeds, and helps crops grow stronger and produce higher yields!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two

Pages: 11 – 13

Name: _____

Topic: Land Preparation

Sub-topic: Importance of Drains in Land Preparation.

PART 1 – SKILL ACTIVITY



LAND PREPARATION

IMPORTANCE OF DRAINS IN LAND PREPARATION

ACTIVITY TYPE

Matching Activity

TIME REQUIRED

20 Minutes

GROUP ACTIVITY

Individual Work

WHAT TO DO

1. Look carefully at the pictures on the left.
2. Read the benefits on the right.
3. Draw a line to match each picture with the correct benefit.

MATCH THE PICTURE TO THE BENEFIT

1		A	Prevents waterlogging. 
2		B	Removes excess water. 
3		C	Improves root growth. 
4		D	Protects crops from flooding. 
5		E	Makes field easier to work. 
6		F	Reduces root diseases. 

FUN FACT!

Good drains help keep the right amount of water in the soil. This helps plants grow strong, stay healthy, and give higher yields!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two

Pages: 14 – 16

Name: _____

Topic:
Land Preparation

Sub-topic:
Tools and Equipment Used in Land Preparation for Different Crops.



LAND PREPARATION

TOOLS AND EQUIPMENT USED FOR DIFFERENT CROPS

ACTIVITY TYPE
Skill Activity

TIME REQUIRED
25 Minutes

GROUP ACTIVITY
Work in a group of 4 – 5 persons.

WHAT TO DO
1. Look carefully at the farmers and the tools.
2. Circle the correct tools each farmer should use.
3. Tick (✓) the farmer who has the field prepared correctly.

1 CABBAGE (LEAF CROP)



Tick (✓) if this field is prepared correctly. ☐

2 RICE (CEREAL CROP)



Tick (✓) if this field is prepared correctly. ☐

3 SWEET POTATO (ROOT CROP)



Tick (✓) if this field is prepared correctly. ☐

4 WATERMELON (FRUIT CROP)



Tick (✓) if this field is prepared correctly. ☐

FUN FACT!
Different crops need different land preparation and tools. Using the right tools the right way helps crops grow well and gives better yields!



TEXTBOOK REFERENCE
Agricultural Science for Secondary Schools – Book Two

Pages: 10 – 12

Name: _____

Topic: Land Preparation

Sub-topic: Manures Incorporation



PART 1 – SKILL ACTIVITY

LAND PREPARATION

MANURES INCORPORATION

ACTIVITY TYPE

Experiment & Data Collection

TIME REQUIRED

30 Minutes Setup + 4 Weeks Monitoring

GROUP ACTIVITY

Work in a group of 4 – 5 persons.

MATERIALS NEEDED

- 3 Pots (same size)
- Low-fertility soil (same amount)
- Organic manure (compost)
- Inorganic manure (e.g. urea or NPK)
- Indicator crop seeds (e.g. maize or mung bean)
- Watering can
- Ruler
- Labels
- Observation chart
- Pencil / Pen

WHAT TO DO

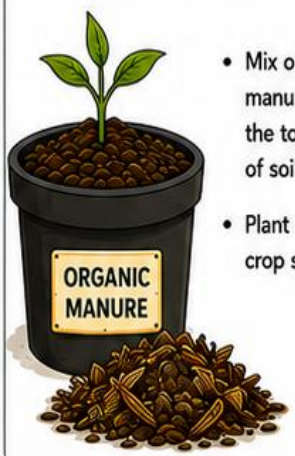
1. Set up the three pots as shown.
2. Water and place the pots in the same sunny location.
3. Observe and record your results once a week for 4 weeks.

SOIL TEST PRACTICAL

Three pots with low-fertility soil treated with organic manure, inorganic manure, or left untreated; test water-holding capacity; plant indicator crop and record differences over four weeks.

EXPERIMENT SETUP

POT A – ORGANIC MANURE



- Mix organic manure into the top 5 cm of soil.
- Plant indicator crop seeds.

POT B – INORGANIC MANURE



- Mix inorganic manure into the top 5 cm of soil.
- Plant indicator crop seeds.

POT C – NO MANURE (CONTROL)



- Do not add any manure.
- Plant indicator crop seeds.

DATA TABLE (RECORD YOUR RESULTS)

WEEK	WATER-HOLDING CAPACITY (ml of water held after 1 hour)			PLANT HEIGHT (cm)			LEAF COLOUR (Pale / Green / Dark Green)		
	ORGANIC MANURE	INORGANIC MANURE	NO MANURE	ORGANIC MANURE	INORGANIC MANURE	NO MANURE	ORGANIC MANURE	INORGANIC MANURE	NO MANURE
1									
2									
3									
4									

FUN FACT!

Adding manure improves soil structure, increases water-holding capacity, and provides nutrients that help crops grow stronger and produce higher yields!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two

Pages: 19 – 23

Name: _____

Topic: Land Preparation

Sub-topic: Limestone Application



PART 1 – SKILL ACTIVITY

LAND PREPARATION

LIMESTONE APPLICATION

ACTIVITY TYPE

Experiment & Data Collection

TIME REQUIRED

30 Minutes Setup + 4 Weeks Monitoring

GROUP ACTIVITY

Work in a group of 4 – 5 persons.

MATERIALS NEEDED

- 2 Pots (same size)
- Acidic soil (same amount)
- Limestone (agricultural lime)
- Indicator crop seeds (e.g., maize or mung bean)
- Watering can
- Ruler
- Labels
- Observation chart
- Pencil / Pen

WHAT TO DO

1. Set up the two pots exactly as shown.
2. Water and place both pots in the same sunny location.
3. Observe and record your results once a week for 4 weeks.

'LIME vs. NO LIME' EXPERIMENT

Set up two identical pots with acidic soil, treat one with limestone, plant an indicator crop, and monitor height, leaf colour, and yield over four weeks.

EXPERIMENT SETUP

POT A – NO LIME (CONTROL)



- Add the same amount of acidic soil.
- Do not add limestone.
- Plant the indicator crop seeds.

POT B – WITH LIME (TREATED)



- Add the same amount of acidic soil.
- Mix limestone into the top 5 cm of soil (2 tablespoons).
- Plant the indicator crop seeds.

DATA TABLE (RECORD YOUR RESULTS)

WEEK	PLANT HEIGHT (cm)		LEAF COLOUR		YIELD / BIOMASS (g)	
	NO LIME	WITH LIME	NO LIME (Pale / Green)	WITH LIME (Pale / Green)	NO LIME	WITH LIME
1						
2						
3						
4						

FUN FACT!

Limestone raises soil pH, reduces acidity makes nutrients more available to plants, and helps crops grow bigger and healthier!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two

Pages: 15 – 18

Name: _____

Topic: Land Preparation

Sub-topic: Pesticides Application



PART 1 – SKILL ACTIVITY

Activity Type:
Pre-Planting Pest Prevention Strategy

Time Required:
30 Minutes

Individual Activity:
1 Student

Tools & Materials:

- Worksheet
- Pencil
- Coloured pencils
- Pest information cards
- Field scenario card

WHAT TO DO

1. Read the field scenario carefully.
2. Study the pest problems shown in the field.
3. Identify the type of pest causing damage.
4. Decide whether an insecticide, fungicide, or nematicide should be used.
5. Complete the treatment plan.
6. Explain why the pesticide should be applied before planting.
7. Recommend additional pest prevention measures.

FIELD SCENARIO

Farmer James plans to plant cabbage on a field that has experienced the following problems:

- Caterpillars damaging leaves
- Fungal disease causing seedling damping-off
- Root-knot nematodes damaging roots



1. CATERPILLARS (Insects)



Holes in leaves, poor growth and reduced yield.

2. DAMPING-OFF DISEASE (Fungus)



Seedlings decay at the base and fall over.

3. ROOT-KNOT NEMATODES (Nematodes)



Galls on roots, poor nutrient uptake and stunted plants.

WHY IT MATTERS



Manures improve soil fertility, increase water-holding capacity, stimulate good microorganisms and provide nutrients for strong plant growth and better yield.

TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools – Grade 8
Unit: Land Preparation
Topic: Pesticides Application
Pages: 18 – 20

CONTINUATION ON NEXT PAGE
Additional information and activities continue on the next page.

PART 2 – VISUAL SKILL ASSESSMENT (Continuation from previous page)

Complete the Pest Prevention Treatment Plan

Use the information from the previous page to complete the table and answer the questions.

Pest Problem	Type of Pest (Insect / Fungus / Nematode)	Pesticide Type Needed (Insecticide / Fungicide / Nematicide)	Why Apply Before Planting? (Explain your reason)
 Caterpillars on leaves	_____	_____	_____
 Damping-off disease	_____	_____	_____
 Root-knot nematodes	_____	_____	_____

RECOMMENDATION

Which pest problem would you treat first and why?

_____

_____

_____

ADDITIONAL PREVENTION MEASURES

Tick (✓) the methods that help reduce pests before planting.

- ☐ Remove crop residues
- ☐ Improve field drainage
- ☐ Use clean planting material
- ☐ Leave weeds growing
- ☐ Practice crop rotation
- ☐ Sanitize tools and equipment



Name: _____

Topic: Cultivation of Crops

Sub-topic: Cabbage (*Brassica oleracea*)



PART 1 – SKILL ACTIVITY

Activity Type: Cabbage Passport

Time Required: 30 Minutes

Individual Activity: 1 Student

Tools & Materials:
- Worksheet (Passport template)
- Pencil
- Coloured pencils
- World map page (provided)

WHAT TO DO

1. Your task is to create a Cabbage Passport.
2. Fill in all the details about cabbage.
3. Use the world map to show how cabbage spread from its place of origin to other countries where it is grown today.
4. Draw arrows to show the movement.
5. Colour the countries where cabbage is widely cultivated.

MY CABBAGE PASSPORT

Draw or paste a picture of cabbage here.

Crop Name (Common Name): _____

Scientific Name: _____

Family: _____

Place of Origin: _____

Major Countries/Regions Where Cabbage is Grown Today:

_____

_____

_____

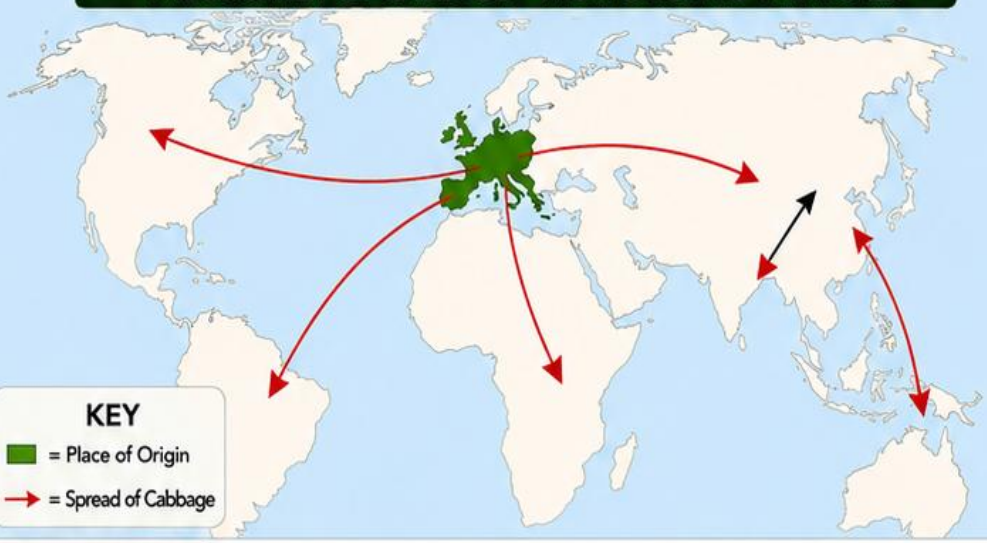
CABBAGE PASSPORT

THE JOURNEY OF CABBAGE – FROM ORIGIN TO THE WORLD

CABBAGE ORIGIN

Cabbage originated thousands of years ago in Europe, along the coastal regions of the Mediterranean.





Your Task on the Map
- Colour Europe (place of origin) in green.
- Colour the countries where cabbage is widely grown today.
- Draw red arrows to show how cabbage spread from Europe to these countries.

PART 2 – VISUAL SKILL ASSESSMENT

A. Cut and paste (or write) each piece of information in the correct box in the Cabbage Passport above.

Scientific Name	Family	Place of Origin	Crop Name	Countries/Regions Where Grown
Brassica oleracea	Brassicaceae (Cruciferae)	Europe (Mediterranean region)	Cabbage	Asia, Africa, North America, South America, Europe, Australia

FUN FACT!

Cabbage has been grown for over 4,000 years! It was one of the first vegetables grown by ancient people for food and medicine.

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Grade 8
Unit: Cultivation of Crops
Topic: Cabbage (*Brassica oleracea*)
Pages: 24 – 26

Name: _____

Topic: Cultivation of Crops

Sub-topic: Principles and Practices Used in Cultivation of Cabbage



SKILL ACTIVITY

Activity Type:
Cabbage Cultivation Chain

Time Required:
30 Minutes

Individual Activity:
1 Student

Tools & Materials:
- Worksheet
- Pencil
- Coloured pencils
- Ruler
- World map page (provided)

CABBAGE CULTIVATION CHAIN

INSTRUCTIONS:

1. Study the information about each step in cabbage cultivation.
2. Cut out the requirement cards at the bottom of the page.
3. Read each step and think about the specific requirement needed.
4. Paste the correct requirement card in the blank box provided for each step.
5. Follow the order from start to finish to show the cabbage cultivation chain.

1 LAND PREPARATION



2 NURSERY ESTABLISHMENT



3 TRANSPLANTING



4 SPACING



5 IRRIGATION



6 WEED CONTROL



7 HARVESTING



REQUIREMENT CARDS – CUT OUT AND PASTE IN THE CORRECT STEP



Maintain adequate moisture



Harvest when heads are firm 10–12 weeks after transplanting seedlings



45–60 cm between plants

60–75 cm between rows



Sow seeds in nursery trays or seedbeds



Well-drained fertile soil
Soil pH: 6.0 – 6.8



Regular hand weeding



Transplant healthy seedlings carefully

FUN FACT!

Cabbage belongs to the *Brassicaceae* family, which also includes broccoli, cauliflower, kale and pak choi.



TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools – Grade 8
Unit: Cultivation of Crops
Topic: Principles and Practices Used in Cultivation of Cabbage
Pages: 27 – 30

Name: _____

Topic: Cultivation of Crops

Sub-topic: Pests and Diseases in Cabbage Cultivation

CABBAGE HOSPITAL

Help the sick cabbages!

SKILL ACTIVITY

- **Activity Type:** Cabbage Hospital
- **Time Required:** 20 Minutes
- **Individual Activity:** 1 Student
- **Tools & Materials:**
  - Worksheet
  - Pencil
  - Coloured pencils

WHAT TO DO

1. Look carefully at each sick cabbage.
2. Identify the problem.
3. Circle whether it is a **PEST** or a **DISEASE**.
4. Recommend the best control or treatment.
5. Write your prescription to help the cabbage get better!

OUR MISSION

Identify the problem, choose the right treatment and help the cabbage get better!

OUR CABBAGE PATIENTS

1 Patient: CRICKET



Symptoms:
Holes in leaves.
Ragged edges.
Plants may be stunted.

CIRCLE: PEST / DISEASE

Your Prescription

_____

_____

2 Patient: LEAF MINER



Symptoms:
Winding white trails inside the leaves.
Leaves may turn yellow and dry.

CIRCLE: PEST / DISEASE

Your Prescription

_____

_____

3 Patient: DIAMOND BACK MOTH



Symptoms:
Irregular holes in leaves.
Leaves look lacy.
Caterpillars may be seen.

CIRCLE: PEST / DISEASE

Your Prescription

_____

_____

4 Patient: SOFT ROT



Symptoms:
Leaves become soft, watery and smelly.
Head collapses.

CIRCLE: PEST / DISEASE

Your Prescription

_____

_____

5 Patient: BLACK ROT



Symptoms:
Yellow V-shaped areas on leaves.
Black veins inside the yellow areas.

CIRCLE: PEST / DISEASE

Your Prescription

_____

_____

FUN FACT!

Cabbage belongs to the *Brassicaceae* family, the same family as broccoli, cauliflower, kale and mustard!

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Grade 8
Unit: Cultivation of Crops
Topic: Pests and Diseases in Cabbage Cultivation
Pages: 31 – 36

Name: _____

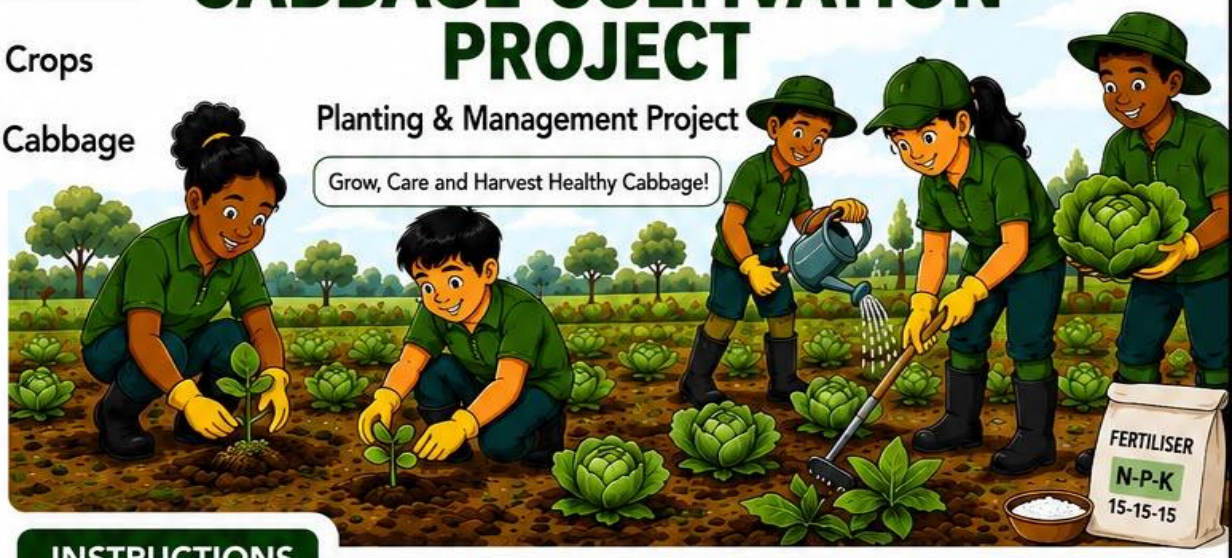
CABBAGE CULTIVATION PROJECT

Topic: Cultivation of Crops

Sub-topic: Cultivation of Cabbage

Planting & Management Project

Grow, Care and Harvest Healthy Cabbage!



SKILL ACTIVITY

Activity Type:
Planting and Management Project

Time Required:
3 Months (12 Weeks)

Group Activity:
4–5 Students

Tools & Materials:

- Healthy cabbage seedlings
- Prepared plot
- Hoe
- Rake
- Watering can
- Fertiliser
- Measuring tape
- Record sheet

INSTRUCTIONS

1. Week 1

- Transplant healthy cabbage seedlings.
- Water immediately after planting.
- Label plots.

2. Weeks 2–4

- Monitor seedling establishment.
- Remove weeds.
- Replace dead seedlings if necessary.
- Observe pests and diseases.

3. Weeks 5–8

- Apply recommended fertiliser.
- Continue irrigation.
- Weed regularly.
- Scout for pests and diseases.

4. Weeks 9–12

- Maintain irrigation schedule.
- Continue pest and disease monitoring.
- Remove weeds.
- Harvest mature cabbage heads.

CABBAGE GROWTH TIMELINE (About 3 Months)



FUN FACT!

A cabbage crop usually takes about 10–12 weeks after transplanting to produce mature heads ready for harvest.

TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools – Grade 8
Unit: Cultivation of Crops
Topic: Cultivation of Cabbage
Pages: 34 – 38

Teacher's Signature: _____

Date Started: _____

Date Completed: _____

CONTINUATION ON NEXT PAGE
Additional activities and information continue on the next page.

CONTINUATION FROM PREVIOUS PAGE

DAILY CABBAGE MAINTENANCE CHECKLIST

- ☐ Check soil moisture
- ☐ Water if necessary
- ☐ Observe for pests
- ☐ Observe for diseases
- ☐ Remove damaged leaves
- ☐ Record observations



WEEKLY CABBAGE MAINTENANCE CHECKLIST (12 WEEKS)

Weekly Activity	Week 1–2	Week 3–4	Week 5–6	Week 7–8	Week 9–10	Week 11–12
Weeding	☐	☐	☐	☐	☐	☐
Fertiliser Application	☐	☐	☐	☐	☐	☐
Pest Scouting	☐	☐	☐	☐	☐	☐
Disease Scouting	☐	☐	☐	☐	☐	☐
Plant Height Recording	☐	☐	☐	☐	☐	☐



Continue on your farm diary for Weeks 3 to 12.

PROJECT OBSERVATION RECORD (Record weekly)

Week	Plant Height (cm)	Number of Leaves	Pests / Diseases Observed	Action Taken / Notes
1				
2				
3 to 12	Continue on your farm diary for Weeks 3 to 12.			

REMEMBER

- Keep records accurate and complete.
- Regular care leads to healthy cabbage and better yield!



Topic: Cultivation of Crops

Sub-topic: Sweet Potato (*Ipomoea batatas*)



PART 1 – SKILL ACTIVITY

Activity Type:
Sweet Potato Passport

Time Required:
30 Minutes

Individual Activity:
1 Student

Tools & Materials:
- Worksheet (Passport Template)
- Pencil
- Coloured pencils
- World map page (provided)

MY SWEET POTATO PASSPORT

Crop Name (Common Name)	: _____
Scientific Name	: _____
Family	: _____
Place of Origin	: _____
Major Countries / Regions Where Grown Today	: _____ _____

Draw or paste a picture of sweet potato here.

WHAT TO DO

1. Create a Sweet Potato Passport.
2. Complete all information about sweet potato.
3. Use the world map to show how sweet potato spread from its place of origin to other regions.
4. Draw arrows to show its movement.
5. Colour the regions where sweet potato is widely cultivated today.

THE JOURNEY OF SWEET POTATO – FROM ORIGIN TO THE WORLD



Place of origin

Regions where sweet potato is widely cultivated today (colour these areas).

FUN FACT!



Sweet potato is not a true potato. It belongs to the Morning Glory family and is grown mainly for its nutritious storage roots.

TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools – Grade 8

Unit: Cultivation of Crops

Topic: Sweet Potato (*Ipomoea batatas*)

Pages: 31 – 33

Topic: Cultivation of Crops

Sub-topic: Principles and Practices Used in Cultivation of Sweet Potato



SKILL ACTIVITY

Activity Type:
Sweet Potato Cultivation Chain

Time Required:
30 Minutes

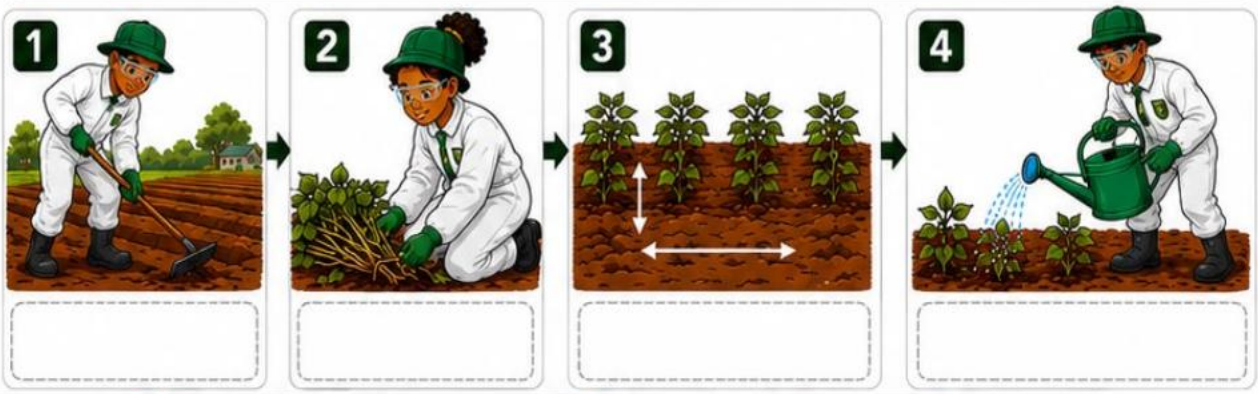
Individual Activity:
1 Student

Tools & Materials:

- Worksheet
- Pencil
- Scissors
- Glue
- Coloured pencils

SWEET POTATO CULTIVATION CHAIN

1. Study the information about each stage of sweet potato cultivation.
2. Cut out the requirement cards at the bottom of the page.
3. Match each requirement card to the correct stage.
4. Paste the card in the blank box below each step.
5. Follow the sequence from planting to harvesting.





REQUIREMENT CARDS – CUT OUT AND PASTE IN THE CORRECT STAGE

1



Well-drained sandy loam soil

2



Healthy slips 25–30 cm long

3



30 cm between plants
90–100 cm between rows

4



Maintain adequate moisture during establishment

5



Apply NPK fertiliser as recommended

6



Regular hand weeding and field sanitation

7



Harvest when leaves begin to yellow and storage roots are fully developed (Approximately 3–5 months after planting)

FUN FACT!

Sweet potato is propagated using slips rather than seeds, allowing farmers to establish crops quickly and uniformly.



TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools – Grade 8
Unit: Cultivation of Crops
Topic: Principles and Practices Used in Cultivation of Sweet Potato
Pages: 34 – 37

Name: _____

Topic: Cultivation of Crops

Sub-topic: Pests and Diseases in Sweet Potato Cultivation.

Skill Activity: **Save the Crop**



CULTIVATION OF CROPS

PESTS AND DISEASES IN SWEET POTATO CULTIVATION

PART 1 – SKILL ACTIVITY

ACTIVITY TYPE

Skill Activity

TIME REQUIRED

5 Minutes

GROUP ACTIVITY

Individual Work

WHAT TO DO

1. Read each sweet potato crop problem carefully.
2. Tick (✓) the ONE best control method for each problem.
3. Check your answers before submitting your worksheet.

SAVE THE CROP

Look at each problem in the sweet potato field below.
Tick (✓) the ONE best control method that will help save the crop.

1. Many holes in the leaves. You also see green caterpillars on the plants.



- ☐ A. Hand-pick the caterpillars.
- ☐ B. Water the plants more.
- ☐ C. Apply fertilizer.
- ☐ D. Leave the field untouched.

2. Holes in the storage roots when harvested. You see small brown beetles on the soil.



- ☐ A. Crop rotation.
- ☐ B. Burn all the plants.
- ☐ C. Spray more water.
- ☐ D. Plant more sweet potato cuttings.

3. Holes and tunnels in the stems. Some plants break easily.



- ☐ A. Remove and destroy infested stems.
- ☐ B. Add more fertilizer.
- ☐ C. Plant closer together.
- ☐ D. Water the field daily.

4. Plants are yellowing and wilting. The roots look brown inside.



- ☐ A. Plant resistant varieties.
- ☐ B. Water the plants more.
- ☐ C. Remove infected plants and rotate crops.
- ☐ D. Spray with insecticide.

5. Storage roots have black, watery rot. A bad smell is present.



- ☐ A. Use healthy, disease-free planting material.
- ☐ B. Add more nitrogen fertilizer.
- ☐ C. Irrigate the field more.
- ☐ D. Plant in the rainy season.

FUN FACT!

Keeping your field clean, using healthy cuttings and rotating crops are some of the best ways to prevent pests and diseases in sweet potato crops and get higher yields!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two

Pages: 36 – 38

Name: _____

Topic: Cultivation of Crops

Sub-topic: Cultivation of sweet potato

Skill Activity:
Planting & Management Project — transplant sweet potato slips into a prepared plot; carry out weekly weeding, fertiliser application, and pest/disease scouting

PART 1 – SKILL ACTIVITY

CULTIVATION OF CROPS

CULTIVATION OF SWEET POTATO



ACTIVITY TYPE
Skill Activity

TIME REQUIRED
5 Minutes

GROUP ACTIVITY
Individual Work

MATERIALS NEEDED
- Worksheet
- Pencil / Pen

WHAT TO DO
1. Read each task carefully.
2. Tick (✓) the ONE best action for each task.
3. Check your answers before submitting your worksheet.

PLANTING & MANAGEMENT PROJECT

Look at the sweet potato plot below.
Tick (✓) the **ONE** best action you would take for each task to cultivate sweet potato using appropriate techniques and materials.

TASK	BEST ACTION (Tick ✓ ONE)	
1. You are ready to start your crop. What is the best first action?	☐ A. Irrigate the field	☐ C. Apply fertiliser
	☐ B. Transplant healthy slips	☐ D. Spray insecticide
2. One week after transplanting, you notice many weeds in the plot. What should you do?	☐ A. Increase irrigation	☐ C. Apply more fertiliser
	☐ B. Weed the plot	☐ D. Harvest the crop
3. It is time to feed the plants. What is the best action?	☐ A. Apply recommended fertiliser	☐ C. Add more water
	☐ B. Spray with pesticide	☐ D. Remove healthy leaves
4. During your scouting, you find holes in some leaves and see caterpillars. What should you do?	☐ A. Ignore it	☐ C. Harvest early
	☐ B. Remove and destroy affected leaves and treat if necessary	☐ D. Add more fertiliser
5. To keep your sweet potato crop healthy and productive, what should you do regularly?	☐ A. Weekly weeding	☐ C. Timely fertiliser application
	☐ B. Weekly pest/disease scouting	☐ D. All of the above

FUN FACT!

Sweet potato plants help protect the soil from erosion and are rich in vitamins A and C, which support good health and strong immunity!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two

Pages: 36 – 38

Name: _____

Topic: Cultivation of Crops

Sub-topic: Citrus (Family Rutaceae)



PART 1 – SKILL ACTIVITY

Activity Type:
Hands-on Practical Activity (Citrus Passport Project)

Time Required:
1 Lesson Period (60 minutes)

Group Activity:
Yes
Group Size: 3–4 students

Tools & Materials:

- Citrus leaves (fresh)
- Citrus fruits: orange, tangerine, lemon, lime, grapefruit
- Hand lens
- Ruler
- Worksheet (Citrus Passport template)
- Pencil / coloured pencils
- Glue

WHAT TO DO

1. Collect leaves and a fruit from at least four different citrus types: orange, tangerine, lemon, lime, grapefruit.
2. Observe the leaf and fruit carefully using a hand lens.
3. Measure the leaf length and width.
4. Draw or paste the leaf and fruit in your Citrus Passport.
5. Record the scientific name, common name, family, region of origin and regions where it is cultivated.
6. Present your Citrus Passport neatly.

CITRUS PASSPORT

PASTE or DRAW LEAF	PASTE or DRAW FRUIT

Common Name: _____

Scientific Name: _____

Family: _____

Region of Origin: _____

Regions of Cultivation Today: _____

_____

Leaf Length: _____ cm Leaf Width: _____ cm

Other Observations: _____

_____

PART 2 – VISUAL SKILL ASSESSMENT

A. Match each citrus fruit to its correct common name.



1.	2.	3.	4.	5.

Lemon | Lime | Orange | Tangerine | Grapefruit

B. Tick (✓) the characteristics that are common to citrus plants.

- Evergreen trees or shrubs ☐
- Leaves with a strong smell when crushed ☐
- Flowers have five petals ☐
- Fruits with tough, leathery rind ☐
- Seeds are always large ☐
- Fruits are usually rich in vitamin C ☐
- Plants lose their leaves in the dry season ☐

C. Put the life cycle stages of a citrus plant in the correct order by writing 1–5 in the boxes provided.


Seedling ☐


Flowering ☐


Fruit Production ☐


Mature Plant ☐


Seed ☐

FUN FACT!

Grapefruit was discovered as a natural cross between an orange and a pomelo!



TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools in Guyana – Book Three

Topic: Citrus

Pages: 215 – 217



Name: _____

Topic: Cultivation of Crops

Sub-topic: Citrus (Family Rutaceae)



PART 1 – SKILL ACTIVITY

Activity Type:
Hands-on Practical Activity
(Citrus Cultivation Chain Project)

Time Required:
5 Minutes

Individual Activity:
Yes

Tools & Materials:

- Chart paper / A3 sheet
- Coloured pencils / markers
- Ruler
- Pictures / cut-outs (optional)
- Citrus cultivation notes
- Glue

WHAT TO DO

1. Create a detailed sequential flow chart (Citrus Cultivation Chain) showing all the major principles and practices in citrus cultivation.
2. Use the boxes provided as a guide and annotate each step with key information provided.
3. Add arrows to show the correct sequence from start to finish.

CITRUS CULTIVATION CHAIN

1 SOIL TYPE



Well-drained loamy soil with pH 6.0 – 6.5.

2 PLANTING MATERIAL



Healthy, disease-free seedlings or budded plants.

3 NURSERY



Raise seedlings in nursery bags for 6 – 12 months.

4 TRANSPLANTING



Transplant at height 40 – 60 cm.

5 IRRIGATION



Water regularly.
Young plants: daily.
Mature plants: 2–3 times per week (or as needed).

6 NPK FERTILISER



Apply NPK fertiliser (e.g. 15-15-15) 3–4 times per year.

7 PRUNING



Remove dead, diseased and crossing branches. Prune lightly to shape the tree.

8 WEED CONTROL



Keep basin free of weeds. Use mulching or hand weeding regularly.

9 HARVESTING



Harvest when fruits are fully mature. Use secateurs / dippers to cut with stalk.

PART 2 – VISUAL SKILL ASSESSMENT

A. Matching Citrus Cultivation Chain

Match each practice to its correct description.

1. Irrigation	A. Helps to supply nutrients for vigorous growth and fruit production.
2. NPK Fertiliser	B. Keeps the soil moist so the plant can grow well.
3. Pruning	C. Keeps the area around the tree free from weeds.
4. Weed Control	D. Removes unwanted, dead or diseased branches.

FUN FACT!

Citrus fruits are rich in vitamin C, which helps strengthen your immune system and keep you healthy!



TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools in Guyana – Book Three

Topic: Citrus

Pages: 215 – 217



Name: _____

Topic: Cultivation of Crops

Sub-topic: Pests and Disease in Citrus Cultivation



PART 1 – SKILL ACTIVITY

Activity Type: Individual Activity

Time Required: 5 Minutes

Individual Activity: Yes

What You Need:
- Worksheet
- Pen / Pencil

WHAT TO DO

1. Study the pictures and names of the pests and diseases of citrus in the first column.
2. Read the damage symptoms in the middle column.
3. Read the control methods in the last column.
4. Draw a line to match each pest/disease to its correct damage symptom and control method.

PESTS AND DISEASES OF CITRUS



A. PEST / DISEASE	B. DAMAGE SYMPTOMS	C. CONTROL METHOD
1.  Leaf-cutting ants	Leaves are curled, distorted and covered with small green insects. Sticky honeydew may be present.	Spray with insecticidal soap or recommended insecticide. Encourage natural predators like ladybirds.
2.  Citrus aphid	Leaves yellow and drop. Shoots may die back. Reduced fruit production.	Control aphids with suitable insecticides. Remove and destroy heavily infested shoots.
3.  Root rot / Gummosis	Gum (sticky resin) oozes from trunk. Roots are soft, brown and rotten. Tree growth is stunted.	Improve drainage. Avoid overwatering. Remove affected parts and treat with fungicide.
4.  Tristeza virus	Yellowing of leaves, blotchy mottling, irregular leaf shape and stunted growth. Trees decline over time.	Use virus-free planting material. Control aphids (vectors). Remove and destroy infected trees.

DID YOU KNOW?

Healthy trees resist pests and diseases better! Good care, proper pruning, and clean orchards keep citrus productive and profitable.



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools in Guyana – Book Three

Topic: Citrus

Pages: 218 – 224

Name: _____

Topic: Cultivation of Crops

Sub-topic: Citrus Cultivation



PART 1 – SKILL ACTIVITY

Activity Type:
Individual Activity

Time Required:
2–3 Weeks (ongoing)

Individual Activity:
Yes

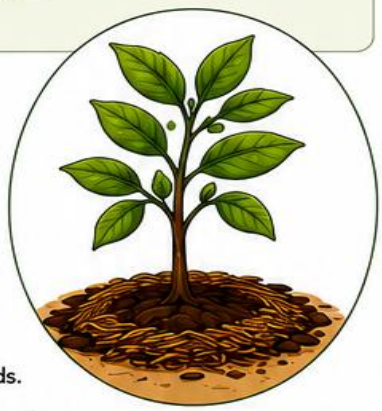
What You Need:

- Citrus seedling (well-rooted)
- Spade / trowel
- Watering can
- Organic manure or NPK fertiliser
- Mulch (dry grass or leaves)
- Gloves (optional)
- Notebook / farm diary / portfolio

WHAT TO DO

PLANTING & MANAGEMENT PROJECT

Transplant at least one citrus seedling into a prepared plot; carry out weekly weeding, fertiliser application, and pest/disease scouting.



1. Prepare your plot by clearing weeds and loosening the soil.
2. Dig a planting hole (40 cm wide x 40 cm deep).
3. Mix topsoil with well-decomposed manure.
4. Carefully remove the seedling from the nursery bag.
5. Place the seedling upright in the hole and backfill with soil.
6. Firm the soil gently and water thoroughly.
7. Mulch around the plant to conserve moisture and reduce weeds.
8. Carry out weekly management practices below for at least 4 weeks.

WEEKLY MANAGEMENT ACTIVITIES

A. WEEDING



Remove all weeds around the plant.
Keep the area clean and loose.
Do this every week.

B. FERTILISER APPLICATION



Apply organic manure or NPK fertiliser (15-15-15) around the base.
Water after application.
Do this every week.

C. PEST/DISEASE SCOUTING



Inspect leaves, stems, and soil for pests or disease symptoms.
Record and treat if necessary.
Do this every week.

TIME TO HARVEST: Citrus trees take 2 – 6 years to bear fruit, depending on the variety and care given. With good management, they can produce for many years.

FARM DIARY / PORTFOLIO – RECORD SHEET

Week	Date	Activities Done (Weeding / Fertiliser / Scouting)	Observations (Pests, Diseases, Growth)	Action Taken	My Notes
Week 1					
Week 2					
Week 3					
Week 4					
...	Continue making weekly entries in your farm diary/portfolio. Include drawings, observations, and any treatments carried out.				

DID YOU KNOW?

Citrus trees can live and produce fruits for 20 years or more when well cared for!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools in Guyana – Book Three
Topic: Citrus
Pages: 215 – 217

Name: _____

Topic: Cultivation of Crop

Sub-topic: Coconut (*Cocos nucifera*)



PART 1 – SKILL ACTIVITY

Activity Type:
Individual Activity

Time Required:
30 Minutes

Individual Activity:
Yes

What You Need:

- Coconut (whole)
- Scissors
- Glue
- Coloured pencils
- Worksheet
- Textbook / notes

What To Do:

1. Examine the coconut carefully.
2. Use your textbook, class notes or the internet (with your teacher's guidance) to find the correct information.
3. Complete your Coconut Passport.
4. Cut out the pictures at the bottom and glue them in the correct boxes.
5. Colour your passport neatly.

COCONUT PASSPORT PROJECT

A passport contains important information about something. Create your own "Coconut Passport" by recording key facts about coconut.

COCONUT PASSPORT

Common Name(s):

_____

_____

Scientific Name:

_____

Family:

_____

Region of Origin:

_____

_____

Major Regions / Countries Where Cultivated:

_____

_____

_____

_____

Paste or draw the coconut fruit here.

COCONUT PASSPORT

Paste or draw the coconut leaf here.

WORLD CROP COCONUT

FUN FACT

Coconut trees can live for over 80 years and are called the "Tree of Life" because almost every part of the coconut can be used!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools in Guyana – Book Three
Topic: Coconut
Pages: 178 – 182

Cut out the pictures below and glue them in the correct boxes above.


COCONUT FRUIT


COCONUT LEAF


COCONUT TREE


COCONUT FLESH


COCONUT WATER

Name: _____

Topic: Cultivation of Crops

Sub-topic: Principles and Practices in Coconut Cultivation



PART 1 – SKILL ACTIVITY

Activity Type:
Individual Activity

Time Required:
60 Minutes

Individual Activity:
Yes

What You Need:

- Worksheet
- Pen / Pencil
- Ruler
- Colour pencils
- Textbook / notes

What To Do:

1. Study the information about coconut cultivation on this page.
2. Create a detailed sequential flow chart (Coconut Cultivation Chain) in the space provided.
3. Include and annotate each step with the key practices listed: soil requirements, planting material (seed nut), depth, irrigation, fertiliser schedule, weed control and harvesting methods (copra vs. fresh water).
4. Draw arrows to show the correct order from start to finish.
5. Use neat labels, colours and short notes to explain each step.

COCONUT CULTIVATION CHAIN ACTIVITY

Create a detailed sequential flow chart showing the complete process of coconut cultivation from site selection to harvesting.
Include and annotate each step with the key practices listed.

1 SITE SELECTION & SOIL REQUIREMENTS



2 PLANTING MATERIAL (SEED NUT)



3 PLANTING



4 IRRIGATION



5 FERTILISER SCHEDULE



6 WEED CONTROL



7 GROWTH & MANAGEMENT



8 HARVESTING METHODS



A. COPRA METHOD



B. FRESH WATER METHOD



FUN FACTS

- A coconut palm can start producing nuts in 6–7 years.
- One palm can produce 80–150 nuts per year.
- Coconuts are called the "Tree of Life" because every part is useful.
- Coconut palms can live for over 80 years!



TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools in Guyana – Book Three
Topic: Coconut
Pages: 183 – 191

Name: _____

Topic: Cultivation of Crops

Sub-topic: Pests and Diseases in Coconut Cultivation



PART 1 – SKILL ACTIVITY

PESTS AND DISEASES MATCHING ACTIVITY

Match each pest or disease in coconut (Column A) to the correct damage symptoms (Column B) and control method (Column C). Write the correct letter in the boxes provided.

COLUMN A Pest / Disease	COLUMN B Damage Symptoms	COLUMN C Control Method
1  Coconut Caterpillar ☐	A Yellowing of older fronds starting from the tips; brown necrotic spots; premature nut fall.	a Apply approved insecticide in the crown; remove and destroy affected leaves; keep the farm clean.
2  Palm Weevil ☐	B Holes and tunnels in the trunk; chewed fibres and oozing sap; wilting and toppling of palm.	b Practice field sanitation; use pheromone traps; apply insecticide into the holes; remove and burn heavily infested palms.
3  Moth Borer ☐	C Spear leaves easily pulled out; foul smell from the bud; tissues turn brown and decay.	c Remove and burn affected bud and leaves; apply Bordeaux paste or copper-based fungicide into the bud; improve drainage.
4  Cedros Wilt ☐	D Wilting of leaves; yellowing of one side of the fronds; death of the spear leaf; yield decline.	d Use disease-free planting material; control insect vectors (sap beetles); remove and burn affected palms.
5  Bud Rot ☐	E Irregular holes in leaves; window patches; young larvae bore into unopened leaves.	e Collect and destroy larvae; apply insecticide into leaf axils; remove severely damaged leaves.
6  Lethal Yellowing ☐	F Yellowing of fronds; spear leaves turn yellow-orange; dwarfed growth; eventual death of palm.	f Control planthoppers; use clean seed nuts; rogue infected palms; apply recommended fertilizers.

FUN FACTS

- A healthy coconut palm can live for over 80 years!
- Early detection of pests and diseases saves palms and increases yields.
- Clean farms and good care keep coconut palms strong and productive.



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools in Guyana – Book Three

Topic: Coconut

Pages: 192 – 205

Name: _____

Topic: Cultivation of Crops

Sub-topic: Cultivation of Coconut



PART 1 – SKILL ACTIVITY

Activity Type:
Individual Activity

Time Required:
4 Weeks
(Weekly Tasks)

Individual Activity:
Yes

What You Need:

- Coconut seedlings
- Spade / hoe
- Watering can
- Compost or fertiliser
- Mulch (dry leaves)
- Gloves
- Observation sheet
- Ruler (optional)

What To Do:

1. Prepare the plot: clear weeds and loosen the soil.
2. Dig holes (60 cm x 60 cm x 60 cm).
3. Transplant coconut seedlings into the holes and firm the soil.
4. Water well after planting and mulch around the base.
5. Carry out weekly tasks for 4 weeks and record your observations in the table provided.

PLANTING & MANAGEMENT PROJECT

Transplant coconut seedlings into a prepared plot. Carry out weekly weeding, fertiliser application, and pest/disease scouting. Record your activities and observations for 4 weeks.

1 PREPARE & TRANSPLANT



- Dig holes (60 cm x 60 cm x 60 cm).
- Transplant the seedling.
- Firm the soil and water well.

2 WEEKLY WEEDING



- Remove weeds around the plant.
- Keep the basin (1–1.5 m radius) free of weeds.

3 FERTILISER APPLICATION



- Apply fertiliser as recommended.
- Cover with soil and water.

4 PEST/DISEASE SCOUTING



- Inspect leaves and stem for pests or diseases.
- Record signs/symptoms and take action.

WEEKLY MANAGEMENT RECORD (4 WEEKS)

Week	Weeding (✓ Done)	Fertiliser Applied (✓ Done)	Fest/Disease Scouting (✓ Done)	Observations (What did you see?)	Action Taken (if any)
Week 1					
Week 2					
Week 3					
Week 4					

FUN FACTS

- A coconut palm can start producing nuts in 6–7 years.
- A mature coconut palm can produce 80–150 nuts per year.
- Coconuts are called the "Tree of Life" because every part is useful.
- Coconut palms can live for over 80 years!



TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools in Guyana – Book Three

Topic: Coconut

Pages: 178 – 186

Name: _____

Topic: Care & Maintenance of Crops

Sub-topic: Terms Used in Irrigation of Crops



PART 1 – SKILL ACTIVITY

SOIL WATER DIAGRAM

Draw and label a diagram showing the relationship between Permanent Wilting Point (PWP), Field Capacity (FC), and Available Water Capacity (AWC) in a typical soil profile. Annotate your diagram to explain when irrigation is required.

ACTIVITY TYPE: Soil Water Profile Construction

TIME REQUIRED: 15 Minutes

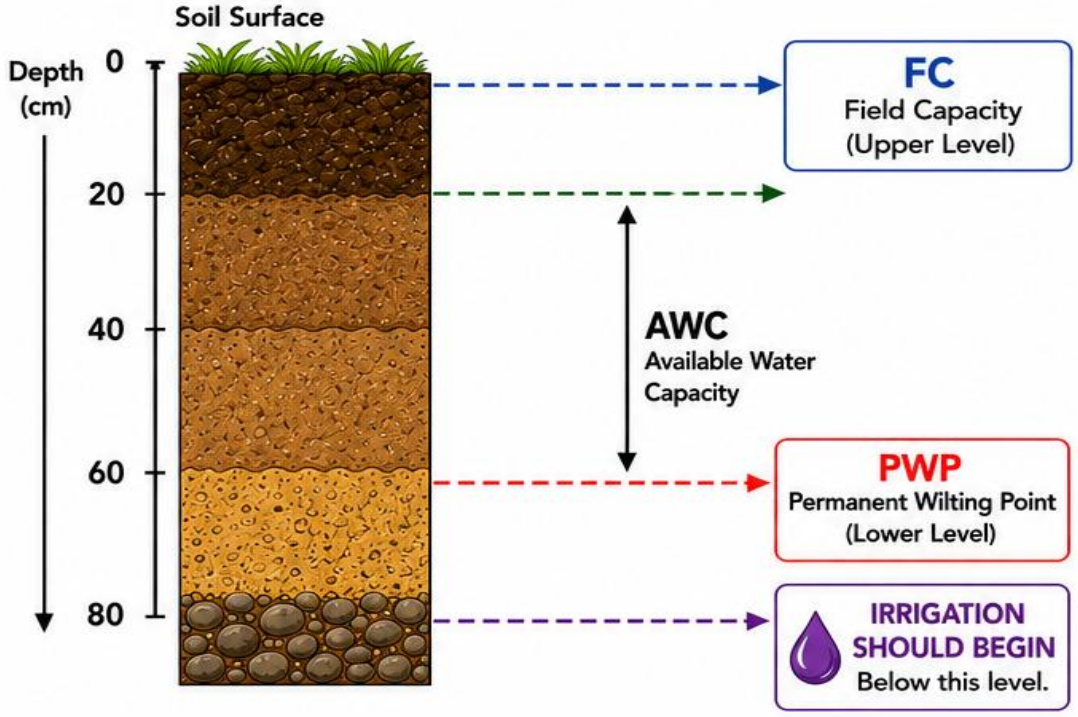
INDIVIDUAL ACTIVITY: 1 Student

TOOLS & MATERIALS:
- Worksheet
- Pencil
- Ruler
- Coloured pencils

WHAT TO DO:

1. Draw a soil profile from 0–80 cm.
2. Label the Soil Surface.
3. Mark and label FC (Field Capacity).
4. Mark and label PWP (Permanent Wilting Point).
5. Shade and label the AWC zone between FC and PWP.
6. Draw an arrow showing the point at which irrigation should begin.

DRAW AND LABEL YOUR DIAGRAM HERE



PART 2 – VISUAL SKILL ASSESSMENT

Match each term with the correct description. Write the correct letter in the box provided.

TERMS		DESCRIPTIONS
1 PWP (Permanent Wilting Point)	☐	A The amount of water the soil holds after excess water has drained away and the soil is no longer saturated.
2 FC (Field Capacity)	☐	B The amount of water available in the soil for plant use (between FC and PWP).
3 AWC (Available Water Capacity)	☐	C The point at which plants cannot extract any more water from the soil and remain permanently wilted.
4 Irrigation Required	☐	D When soil water falls below 50% of AWC (the safe limit), irrigation is needed.

FUN FACT

- Plants can only use the water between Field Capacity and Permanent Wilting Point.
- Sandy soils have less AWC; clay soils have more.
- Proper irrigation saves water and increases crop yield!
- Coconut palms can live for over 80 years!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools in Guyana – Book Three

Topic: Irrigation

Pages: 142 – 149

Name: _____

Topic: Care & Maintenance of Crops

Sub-topic: Sources, Types and Principles of Irrigation



PART 1 – SKILL ACTIVITY

IRRIGATION SYSTEM COMPARISON MATRIX

Research and complete the comparative matrix below for four irrigation systems. Compare them using water use efficiency, cost, and labour requirement.

ACTIVITY TYPE: Research & Comparison

TIME REQUIRED: 25 Minutes

INDIVIDUAL ACTIVITY: 1 Student

TOOLS & MATERIALS:
- Worksheet
- Pen / Pencil
- Reference materials (textbook, internet, notes)

CRITERIA	DRIP / TRICKLE	SPRINKLER / OVERHEAD	FLOOD / FURROW	SUBSURFACE
Illustration				
Description	Water is delivered slowly and directly to the root zone through tubes and emitters.	Water is sprayed into the air and falls on the crops like rainfall.	Water flows over the soil surface or through furrows between crop rows.	Water is applied below the soil surface through buried pipes or emitters.
Water Use Efficiency (How much water is saved?)	1 2 3 4 5 (1 = Low 5 = High)	1 2 3 4 5 (1 = Low 5 = High)	1 2 3 4 5 (1 = Low 5 = High)	1 2 3 4 5 (1 = Low 5 = High)
Cost (Installation and maintenance)	1 2 3 4 5 (1 = Low 5 = High)	1 2 3 4 5 (1 = Low 5 = High)	1 2 3 4 5 (1 = Low 5 = High)	1 2 3 4 5 (1 = Low 5 = High)
Labour Requirement (Work needed to operate and maintain)	1 2 3 4 5 (1 = Low 5 = High)	1 2 3 4 5 (1 = Low 5 = High)	1 2 3 4 5 (1 = Low 5 = High)	1 2 3 4 5 (1 = Low 5 = High)
Advantages (List two)	1. _____ 2. _____	1. _____ 2. _____	1. _____ 2. _____	1. _____ 2. _____
Disadvantages (List two)	1. _____ 2. _____	1. _____ 2. _____	1. _____ 2. _____	1. _____ 2. _____

WHAT TO DO:
1. Read about the four irrigation systems.
2. Research and compare each system using the criteria in the table.
3. Use the rating scale provided.
4. Complete the matrix neatly and accurately.
5. Answer the questions below the table.

Answer these questions:

1. Which irrigation system has the highest water use efficiency? _____
2. Which system has the lowest labour requirement? _____
3. Which system would be most suitable for a dry area with scarce water supply? Why?

_____

FUN FACT
- Drip irrigation can save up to 60% more water compared to flood irrigation.
- Subsurface irrigation reduces weed growth because the soil surface stays drier.
- Proper irrigation increases crop yield and improves plant health.

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools in Guyana – Book Three

Topic: Care & Maintenance of Crops

Pages: 150 – 160

Name: _____

Topic: Care & Maintenance of Crops

Sub-topic: Carry out Irrigation



PART 1 – SKILL ACTIVITY

PRACTICAL SOIL MOISTURE ASSESSMENT

Soil Feel Test

Perform the 'Soil Feel Test' on the garden plot. Use the results to decide whether crops are approaching the wilting point and need watering.

ACTIVITY TYPE: Practical Assessment & Decision Making

TIME REQUIRED: 20 Minutes

INDIVIDUAL ACTIVITY: 1 Student

TOOLS & MATERIALS:
- Trowel
- Bucket
- Watering can
- Worksheet
- Pen / Pencil

WHAT TO DO:

1. Select 3–4 different spots in the garden plot.
2. Remove surface mulch or debris.
3. Dig a small hole or take soil from 10–15 cm depth.
4. Perform the Soil Feel Test (see guide in the table).
5. Record your observations in the table.
6. Decide if the soil is approaching the wilting point.
7. If needed, irrigate the plants using the correct tools.

SOIL FEEL TEST GUIDE

Soil Moisture Condition	How It Feels	What It Looks Like	What It Means	Action Needed
MOIST (Enough Water)	 Feels cool and moist. Forms a ball when squeezed. Breaks apart easily.	 Dark colour. Crumbly and moist.	Soil has enough moisture for healthy growth. Not near wilting point.	No watering needed.
MODERATELY DRY (Low Water)	 Feels slightly moist. Forms a weak ball that cracks when pressed.	 Medium brown colour. Slightly dry.	Soil moisture is lower. Plants may soon feel stress if no rain or watering.	Plan to water soon.
VERY DRY (Approaching Wilting Point)	 Feels dry and warm. Does not form a ball. Crumbles when pressed.	 Light brown colour. Very dry and loose.	Soil is close to the wilting point. Plants may wilt if not watered soon.	Water the crops now.

RECORD YOUR OBSERVATIONS

Spot No.	Location in Garden (e.g., near row 1)	Depth (cm)	Feels Like (choose one)			What It Looks Like (colour/texture)	Is Soil Approaching Wilting Point? (Yes / No)	Action Needed (No Water / Water Soon / Water Now)
			Moist	Moderately Dry	Very Dry			
1			☐	☐	☐			
2			☐	☐	☐			
3			☐	☐	☐			
4			☐	☐	☐			

DECISION:

Based on your observations, are the crops approaching the wilting point?

☐ Yes ☐ No Why? _____

What action did you take? _____



FUN FACT

- Overwatering is just as harmful as underwatering. Roots need air too!
- Checking soil moisture regularly helps save water and keeps crops healthy.
- Drip irrigation can save up to 60% more water compared to flood irrigation.





TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools in Guyana – Book Three
Topic: Care & Maintenance of Crops
Pages: 161 – 166

SAFETY FIRST: Wear your PPE – hat, gloves, long pants and boots – when working in the garden.



Name: _____

Topic: Care & Maintenance of Crops

Sub-topic: Weed control



PART 1 – SKILL ACTIVITY

FIELD/GARDEN WALK & CLASSIFICATION PRACTICAL

Identify five plant species in the garden. Justify whether each is a crop or a weed, referencing at least two harmful effects of weeds.

ACTIVITY TYPE: Practical Observation & Classification

TIME REQUIRED: 30 Minutes

INDIVIDUAL ACTIVITY: 1 Student

TOOLS & MATERIALS:
- Notebook / Worksheet
- Pen / Pencil
- Field guide (if available)
- Hand trowel
- Gloves
- Waste bag

WHAT TO DO:
1. Walk slowly around the garden plot.
2. Observe plants carefully.
3. Identify five different plant species.
4. For each plant, decide if it is a crop or a weed.
5. If it is a weed, list at least two harmful effects on crops.
6. Record your observations in the table.
7. Answer the questions below.

PLANT NO.	PLANT SPECIES (Scientific or Common Name)	IS IT A CROP OR A WEED?	JUSTIFICATION (Why is it a crop or a weed?)	HARMFUL EFFECTS OF WEEDS (If weed, list at least two)
1	Goosegrass (*Eleusine indica*)	Weed	It is not planted by people. It grows among crop plants on its own.	• Competes with crops for water and nutrients. • Reduces crop yield.
2	_____ (_____)	_____	_____	1. _____ 2. _____
3	_____ (_____)	_____	_____	1. _____ 2. _____
4	_____ (_____)	_____	_____	1. _____ 2. _____
5	_____ (_____)	_____	_____	1. _____ 2. _____

Answer these questions:

1. What is the difference between a crop and a weed? _____
2. How do weeds reduce the yield of crops? Give two ways. _____
3. Why is it important to control weeds in a crop field or garden? _____

FUN FACT

- Some weeds can produce thousands of seeds from a single plant, allowing them to spread very quickly throughout a field or garden.

TEXTBOOK REFERENCE

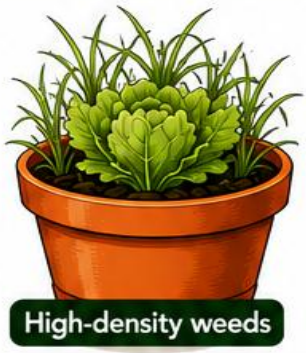
Agricultural Science for Secondary Schools in Guyana – Book Three
Topic: Care & Maintenance of Crops
Pages: 167 – 176

Name: _____

Topic: Care & Maintenance of Crops

Sub-topic: Harmful effects of weeds

PART 1 – SKILL ACTIVITY



High-density weeds



Weed-free



RESOURCE COMPETITION SIMULATION

Plant lettuce in two pots (one with high-density weeds, one weed-free); measure and compare total fresh biomass of the crop after three weeks.



ACTIVITY TYPE:
Practical Investigation & Data Comparison

TIME REQUIRED:
3 Weeks (21 Days)

GROUP ACTIVITY:
2–3 Students

MATERIALS:

- 2 Pots (same size)
- Lettuce seeds/seedlings
- Garden soil (same type)
- Weeds (e.g., grass seeds or fast-growing weeds)
- Watering can
- Ruler
- Scale (to 0.1 g accuracy)
- Labels
- Notebook / Worksheet

WHAT TO DO:

1. Plant the same number of lettuce in both pots.
2. In Pot A, allow many weeds (high density).
3. In Pot B, keep the pot weed-free.
4. Keep both pots in the same place and care the same.
5. After 3 weeks, harvest and measure total fresh biomass of lettuce in each pot.
6. Record and compare your results.

RECORD YOUR OBSERVATIONS AND RESULTS

Observation / Measurement	Pot A (High-density weeds)	Pot B (Weed-free)	Comparison (A vs B)
Number of lettuce plants at the start	_____	_____	_____
Date planted	_____	_____	_____
Date harvested (21 days later)	_____	_____	_____
Average height of lettuce (cm)	_____	_____	_____
Total fresh biomass of lettuce (g)	_____	_____	_____
Observations (appearance of lettuce, leaf size, colour, etc.)	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____

FUN FACT

Weeds can use up to 50% more water and nutrients than crops, leaving less for the crop to grow strong and produce well.

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools in Guyana – Book Three
Topic: Care & Maintenance of Crops
Pages: 177 – 182

Name: _____

Topic: Care & Maintenance of Crops

Sub-topic: Weed Control implementation

PART 1 – SKILL ACTIVITY





INTEGRATED WEED MANAGEMENT (IWM) PLAN

Develop a six-week IWM plan for cultivated crops, combining cultural, mechanical, and chemical control methods with justification for best conditions of each.

WHAT TO DO:

1. Choose a cultivated crop and describe the field conditions.
2. Identify the main weed problems.
3. Select and plan cultural, mechanical, and chemical control methods.
4. State the best conditions for each method.
5. Prepare and follow your six-week IWM plan.
6. Review and record the results at the end.

ACTIVITY TYPE:

Project Planning & Implementation Plan

TIME REQUIRED:

6 Weeks

GROUP ACTIVITY:

2–4 Students

MATERIALS:

- Crop information
- Field tools
- Herbicide label
- PPE (gloves, boots, mask, goggles)
- Notebook / Worksheet

IWM PLAN FOR CULTIVATED CROP (6 WEEKS)

Crop: _____ Field Location: _____

Field Size: _____ Soil Type: _____

Main Weed Problems: _____

WEEK	CULTURAL CONTROL (Prevention & Management)	MECHANICAL CONTROL (Physical Removal or Suppression)	CHEMICAL CONTROL (Herbicide: Product, Rate & Method)	BEST CONDITIONS (When & Why It Works Best)	JUSTIFICATION (Why This Method Is Used)
WEEK 1 (Preparation)					
WEEK 2					
WEEK 3					
WEEK 4					
WEEK 5					
WEEK 6 (Review)					

EXPECTED OUTCOMES: _____

GOOD PRACTICES

1. Wear appropriate PPE during all weed control activities.
2. Apply herbicides safely and only as recommended on the label.



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools in Guyana – Book Three
Topic: Care & Maintenance of Crops
Pages: 183 – 190

Name: _____

Topic: Care & Maintenance of Crops

Sub-topic: Principles in Mulching & Pruning



PART 1 – SKILL ACTIVITY

ACTIVITY TYPE
Decision Making & Justification

TIME REQUIRED
25–30 Minutes

GROUP ACTIVITY
Individual

MATERIALS NEEDED
- Worksheet
- Pencil / Pen
- Textbook (optional)

WHAT TO DO
1. Read the farm scenario carefully.
2. Tick FOUR (4) correct actions that will help the citrus tree.
3. Explain how mulching and pruning help the citrus tree grow better.

PRINCIPLES OF MULCHING & PRUNING
FARM SCENARIO ACTIVITY

FARM SCENARIO
You are caring for a young citrus tree that has many weeds growing around it. Some branches are dead and others are rubbing against each other. The weather is hot and dry.

TICK FOUR (4) ACTIONS THAT WILL HELP THE CITRUS TREE GROW HEALTHY.
- ☐ Remove the weeds around the tree.
- ☐ Apply organic mulch around the base of the tree.
- ☐ Leave the mulch touching the tree stem.
- ☐ Prune the dead branches.
- ☐ Remove branches that cross and rub together.
- ☐ Leave diseased branches on the tree.
- ☐ Water the tree after mulching.

JUSTIFY YOUR CHOICES
1. How does mulching help the citrus tree?

_____

_____

_____

2. How does pruning improve the health and growth of the citrus tree?

_____

_____



FUN FACT!
Mulch can reduce water loss from the soil by up to 50% and helps keep roots cool during hot weather.



TEXTBOOK REFERENCE
Agricultural Science for Secondary Schools – Book Two

Chapter 1: Care and Maintenance of Crops (Principles of Cultivation)

Pages: 35 – 45

Name: _____

Topic: Care & Maintenance of Crops

Sub-topic: When to Mulch & Prune Crop Plants



PART 1 – SKILL ACTIVITY

ACTIVITY TYPE
Decision Making & Justification

TIME REQUIRED
25 – 30 Minutes

GROUP ACTIVITY
Individual / Pairs

MATERIALS NEEDED
- Worksheet
- Pencil / Pen
- Reference book (optional)

WHAT TO DO
1. Read each crop scenario carefully.
2. Decide whether the crop needs Mulching, Pruning, Both, or Neither.
3. Tick (✓) your choice.
4. Justify your decision using the space provided.

WHEN TO MULCH & PRUNE CROP PLANTS

SCENARIO-BASED DECISION-MAKING

ACTIVITY:
Read each crop scenario below. Decide whether the crop plants need Mulching, Pruning, Both, or Neither at this time.

CROP SCENARIOS	YOUR DECISION (Tick One)	JUSTIFY YOUR CHOICE (Why?)
1  **TOMATOES (HOT / ARID CLIMATE)** The tomato plants are in fruiting stage. The soil is dry, cracks easily and weeds are growing around the plants. The weather has been hot with very little rainfall.	☐ Mulching ☐ Pruning ☐ Both ☐ Neither	_____ _____ _____ _____
2  **LEAFY GREENS (COOL / WET CLIMATE)** The leafy greens are growing well, but the weather has been cool with frequent rains. The soil stays moist for long periods.	☐ Mulching ☐ Pruning ☐ Both ☐ Neither	_____ _____ _____ _____
3  **MANGO TREES (OVERLY DENSE)** The mango trees have many crossing branches and very dense canopies. Some inner branches are not getting sunlight. There is poor air movement in the canopy.	☐ Mulching ☐ Pruning ☐ Both ☐ Neither	_____ _____ _____ _____

FUN FACT!
Mulching conserves moisture, controls weeds and keeps soil cool. Pruning improves light penetration, air flow, and encourages better growth and higher yields.



TEXTBOOK REFERENCE
Agricultural Science for Secondary Schools – Book Two
Chapter 1: Care and Maintenance of Crops (Principles of Cultivation)
Pages: 35 – 45

Name: _____

Topic: Care & Maintenance of Crops

Sub-topic: When to Mulch & Prune Crop Plants



PART 1 – SKILL ACTIVITY

ACTIVITY TYPE
Decision Making & Justification

TIME REQUIRED
25 – 30 Minutes

GROUP ACTIVITY
Individual / Pairs

MATERIALS NEEDED
- Worksheet
- Pencil / Pen
- Reference book (optional)

WHAT TO DO
1. Read each crop scenario carefully.
2. Decide whether the crop needs Mulching, Pruning, Both, or Neither.
3. Tick (✓) your choice.

WHEN TO MULCH & PRUNE CROP PLANTS

SCENARIO-BASED DECISION-MAKING

ACTIVITY:
Read each crop scenario below. Decide whether the crop plants need Mulching, Pruning, Both, or Neither at this time.

CROP SCENARIOS	YOUR DECISION (Tick One)
1  **TOMATOES (HOT / ARID CLIMATE)** The tomato plants are in fruiting stage. The soil is dry, cracks easily and weeds are growing around the plants. The weather has been hot with very little rainfall.	☐ Mulching ☐ Pruning ☐ Both ☐ Neither
2  **LEAFY GREENS (COOL / WET CLIMATE)** The leafy greens are growing well, but the weather has been cool with frequent rains. The soil stays moist for long periods.	☐ Mulching ☐ Pruning ☐ Both ☐ Neither
3  **MANGO TREES (OVERLY DENSE)** The mango trees have many crossing branches and very dense canopies. Some inner branches are not getting sunlight. There is poor air movement in the canopy.	☐ Mulching ☐ Pruning ☐ Both ☐ Neither

FUN FACT!
Mulching helps conserve moisture, controls weeds, regulates soil temperature and adds organic matter. Pruning improves air circulation, light penetration and helps plants grow stronger and healthier.



TEXTBOOK REFERENCE
Agricultural Science for Secondary Schools – Book Two
Chapter 1: Care and Maintenance of Crops (Principles of Cultivation)
Pages: 35 – 45

Name: _____

Topic: Care & Maintenance of Crops

Sub-topic: Mulching & Pruning

CARE & MAINTENANCE OF CROPS

MULCHING & PRUNING EXERCISE



Practical Activity: Mulching Implementation & Monitoring

Apply mulch, monitor soil moisture and compare results.

PART 1 – SKILL ACTIVITY

Implement mulch, monitor soil moisture, and compare results.

ACTIVITY TYPE

Practical Investigation & Demonstration

TIME REQUIRED

2 Weeks Monitoring

GROUP ACTIVITY

Small Groups / Pairs

MATERIALS NEEDED

- Organic mulch (dry leaves, straw, grass clippings etc.)
- Soil moisture meter
- Ruler or measuring tape
- Garden trowel / rake
- Watering can
- Notebook / Recording sheet

WHAT TO DO

1. Read all the instructions carefully.
2. Apply a 5–10 cm layer of organic mulch to the **MULCHED PLOT**. Leave the **CONTROL PLOT** bare.
3. Each day for 14 days, measure and record soil moisture (%) at the same time using a soil moisture meter.
4. Record your results in the table below.
5. Compare the soil moisture between the two plots and note your observations.

WHAT TO DO (5 STEPS)

1 SET UP TWO PLOTS

Prepare two equal garden plots.





Keep both plots the same size and water both equally.

2 MONITOR SOIL MOISTURE

Use a soil moisture meter to measure and record moisture at the same time each day.



3 RECORD

Record the moisture (%) for both plots for 14 days.

4 COMPARE

Compare soil moisture, plant appearance and soil temperature.



5 OBSERVE & NOTE

Make observations about the benefits of mulching.

SOIL MOISTURE RECORD SHEET (Record moisture %)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14
MULCHED PLOT (%)														
UNMULCHED PLOT (%)														

OBSERVATIONS: _____

_____

FUN FACT!

Mulch helps keep the soil cool, reduces evaporation, suppresses weeds and adds organic matter as it breaks down. This helps plants stay healthy and produce better yields.



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two

Chapter 1: Care and Maintenance of Crops (Principles of Cultivation)

Pages: 35 – 45

Name: _____

Topic: Care & Maintenance of Crops

Sub-topic: IPM, Crop Rotation & Field Sanitation Principles

IPM, CROP ROTATION & FIELD SANITATION ROLE PLAY

Act out the scenarios below to show the effects and benefits of IPM, crop rotation and field sanitation in ideal and non-ideal situations with different crop types.



PART 1 – SKILL ACTIVITY

Demonstrate through role play the impact of good and poor practices on crop production.

ACTIVITY TYPE

Role Play & Group Performance

TIME REQUIRED

40 – 50 Minutes

GROUP ACTIVITY

Small Groups (4 – 6 students)

MATERIALS NEEDED

- Scenario cards
- Role cards
- Props (hats, signs, tools, etc.)
- Whistle or bell
- Chart paper (optional)

WHAT TO DO

1. Read your scenario carefully.
2. Plan and perform your role play to show the situation.
3. Discuss what happened in your scenario.

SCENARIOS – CHOOSE OR ASSIGN ONE TO EACH GROUP

SCENARIO 1: IPM

Two vegetable farmers are growing cabbage.



NON-IDEAL SITUATION:

Farmer A uses strong chemicals for every small pest. He does not scout the field or use other control methods.

IDEAL SITUATION:

Farmer B scouts the field, removes pests by hand, uses neem spray and encourages natural enemies. He only uses chemicals as the last option.

ROLE PLAY THE DIFFERENCES IN RESULTS AND BENEFITS.

SCENARIO 2: CROP ROTATION

Two farmers plant on the same piece of land for two seasons.



NON-IDEAL SITUATION:

Farmer C plants tomatoes in the same field every season. The soil becomes tired and pests/diseases increase.

IDEAL SITUATION:

Farmer D rotates crops (e.g. tomatoes → legumes → leafy greens). Soil stays healthy and yields improve.

ROLE PLAY THE DIFFERENCES IN RESULTS AND BENEFITS.

SCENARIO 3: FIELD SANITATION

Two groups manage a pepper field before planting.



NON-IDEAL SITUATION:

Farmer E leaves weeds, crop residues and old diseased plants in the field. Pests and diseases carry over.

IDEAL SITUATION:

Farmer F clears weeds, removes old plants, and disposes of waste properly before planting. Plants grow healthier.

ROLE PLAY THE DIFFERENCES IN RESULTS AND BENEFITS.

FUN FACT!

Clean fields, smart planting choices and natural pest control methods help crops grow stronger, reduce losses and give us more food!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two
Chapter 1: Care and Maintenance of Crops (Principles of Cultivation)
Pages: 35 – 45

Name: _____

Topic: Care & Maintenance of Crops

Sub-topic: IPM, Crop Rotation & Field Sanitation Principles

CARE & MAINTENANCE OF CROPS
IPM, CROP ROTATION & FIELD SANITATION EXERCISE

Practical Activity: Field Sanitation Audit & Execution + Crop Rotation Plan



PART 1 – SKILL ACTIVITY

Audit the school garden for poor sanitation, clean the area and design a crop rotation plan.

ACTIVITY TYPE

Practical Investigation & Planning

TIME REQUIRED

2 – 3 Periods

GROUP ACTIVITY

Pairs / Small Groups

MATERIALS NEEDED

- Audit checklist (provided)
- Gloves
- Garbage bags
- Rake / hoe / trowel
- Wheelbarrow (if available)
- Broom
- Notebook / chart paper
- Writing materials

WHAT TO DO

1. Conduct a sanitation audit of the school garden using the checklist. Record your findings.
2. Create and execute a quick-action cleanup plan to correct the problems found.
3. Share your findings and actions with the class.

PART 1: FIELD SANITATION AUDIT & EXECUTION

A. FIELD SANITATION AUDIT CHECKLIST

Inspect the garden carefully and tick (✓) the condition you observe.

No.	SANITATION AREA	GOOD (No Problem) ✓	NEEDS ATTENTION (Problem Present)	POOR (Severe Problem)	ACTIONS NEEDED (What must be done?)
1	Weeds in beds and pathways				
2	Crop residues / dead plants				
3	Fallen leaves and debris				
4	Pest or disease infected plants				
5	Litter / plastic / non-biodegradable waste				
6	Stagnant water / poor drainage				
7	Tools and equipment left untidy				
8	Compost area / bin management				

B. QUICK-ACTION CLEANUP PLAN

List the main problems you found and the actions your group will take.

MAIN PROBLEMS FOUND	ACTIONS WE WILL TAKE	WHO WILL DO IT?	TARGET DATE	DONE ✓

FUN FACT!

Good sanitation and crop rotation reduce pests and diseases, improve soil health and help crops grow better for longer!

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two
Chapter 1: Care and Maintenance of Crops
(Principles of Cultivation)
Pages: 35 – 45

Name: _____

Topic: Care & Maintenance of Crops

Sub-topic: IPM, Crop Rotation & Field Sanitation Principles

CARE & MAINTENANCE OF CROPS
IPM, CROP ROTATION & FIELD SANITATION EXERCISE

Practical Activity: Field Sanitation Audit & Execution + Crop Rotation Plan



PART 2 – FOUR-YEAR CROP ROTATION PLAN

Design a four-year crop rotation plan using the crop types below and give a written justification for each year change.

ACTIVITY TYPE

Planning & Analysis

TIME REQUIRED

2 – 3 Periods

GROUP ACTIVITY

Pairs / Small Groups

MATERIALS NEEDED

- Notebook / chart paper
- Pen / pencil
- Crop information sheet (provided by teacher)
- Ruler (optional)

WHAT TO DO

1. Review the crop types and their roles.
2. Plan a four-year crop rotation for the same garden plot.
3. Write a short justification for each year change.

PART 2: FOUR-YEAR CROP ROTATION PLAN

Use the crop types below to create a four-year rotation plan for the same garden plot.

CROP TYPES (Use in your rotation)

HEAVY FEEDERS	LIGHT FEEDERS	NITROGEN FIXERS
(High nutrient demand) e.g. Maize, Cabbage, Tomatoes, Peppers, Eggplant	(Low nutrient demand) e.g. Lettuce, Carrots, Onions, Radishes	(Improve soil nitrogen) e.g. Beans, Peas, Cowpea, Groundnut
		

YEAR	CROP TYPE (Heavy / Light / Nitrogen Fixer)	EXAMPLE CROP(S) (Choose from list or other suitable crop)	JUSTIFICATION (Why this crop this year?)
YEAR 1			
YEAR 2			
YEAR 3			
YEAR 4			

After Year 4, return to Year 1 and repeat the rotation cycle.

FUN FACT!

Rotating crops keeps the soil healthy, breaks pest and disease cycles, and improves yields. Adding nitrogen fixers helps natural nutrients return to the soil!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two
Chapter 1: Care and Maintenance of Crops
(Principles of Cultivation)
Pages: 35 – 45

Name: _____

Topic: Harvesting & Marketing

Sub-topic: Principles of Harvesting and Types of Harvesting

HARVEST AT THE RIGHT TIME

Skill: Observation & Decision Making



SCENARIO

Your teacher has prepared six crop samples. Some are ready for harvest while others are not. Inspect each crop carefully and decide whether it is ready to harvest or needs more time to mature.

ACTIVITY FOCUS

Observe crop samples and decide if each one is ready for harvest or needs more time to mature.

ACTIVITY TYPE

Observation & Decision Making

TIME REQUIRED

30 – 40 Minutes

GROUP ACTIVITY

Pairs / Small Groups (2 – 3 students)

MATERIALS NEEDED

- Crop samples (real or pictures)
- Observation sheet (this page)
- Clipboards / pencils

WHAT TO DO

1. Inspect each crop sample carefully.
2. Look for signs of maturity.
3. Decide if the crop is ready to harvest or should wait longer.
4. Tick (✓) the correct box for each crop.
5. Discuss your reasons with your group.

ACTIVITY: OBSERVE AND DECIDE

For each crop sample below, tick (✓) whether it is ready to harvest or if it should wait longer.

1. TOMATO



☐ Harvest Now
☐ Wait Longer

2. CARROT



☐ Harvest Now
☐ Wait Longer

3. CABBAGE



☐ Harvest Now
☐ Wait Longer

4. SWEET PEPPER



☐ Harvest Now
☐ Wait Longer

5. PUMPKIN



☐ Harvest Now
☐ Wait Longer

6. LETTUCE



☐ Harvest Now
☐ Wait Longer

Which crop was the easiest to decide? Why? Which was the hardest? Why?

_____

_____

_____

FUN FACT!

Harvesting at the right time gives better flavour, higher quality and more yield, and helps crops last longer after harvest!



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Book Two
Chapter 1: Care and Maintenance of Crops
(Principles of Cultivation)
Pages: 36 – 41

Name: _____

Topic:
Harvesting & Marketing

Sub-topic:
Harvesting Techniques and Tools

HARVEST TECHNIQUE DEMONSTRATION

Skill: Practical Demonstration



SCENARIO

You are harvesting crops from the school garden for market.

Demonstrate how to harvest each crop properly using the correct tools, safe techniques and good handling.

ACTIVITY FOCUS

Demonstrate correct harvesting techniques for different crops using appropriate tools, safe practices and good handling.

ACTIVITY TYPE

Practical Demonstration

TIME REQUIRED

30 – 45 Minutes

GROUP ACTIVITY

Pairs / Small Groups (2 – 3 students)

MATERIALS NEEDED

- Tomato plants with fruit
- Lettuce heads
- Carrots
- Pumpkin
- Appropriate tools
- Harvest baskets
- Gloves (optional)

WHAT TO DO

1. Read the scenario carefully.
2. Demonstrate how to harvest each crop using the correct tools and techniques.
3. Handle the produce carefully to avoid damage.
4. Place each harvested crop in the basket.
5. Your teacher will observe your demonstration.

DEMONSTRATE THE CORRECT HARVESTING TECHNIQUE

For each crop below, demonstrate the correct harvesting technique.

1. TOMATO



TOOL:
Secateurs / Sharp knife



HOW TO HARVEST:

- Do not pull the fruit.
- Cut the stem above the fruit.
- Place gently in basket.

2. LETTUCE



TOOL:
Sharp knife



HOW TO HARVEST:

- Cut the lettuce at the base.
- Leave outer leaves intact.
- Place gently in basket.

3. CARROT



TOOL:
Digging fork / Hand



HOW TO HARVEST:

- Loosen the soil around the carrot.
- Pull gently by the top.
- Brush off excess soil.
- Place gently in basket.

4. PUMPKIN



TOOL:
Sharp knife / Secateurs



HOW TO HARVEST:

- Cut the stem leaving 5 – 10 cm.
- Do not drop or roll the pumpkin.
- Carry carefully.

Name: _____

Topic:
Harvesting & Marketing

Sub-topic:
Harvesting Techniques and Tools

ACTIVITY TYPE
Practical Demonstration

TIME REQUIRED
30 – 45 Minutes

GROUP ACTIVITY
Pairs / Small Groups
(2 – 3 students)

MATERIALS NEEDED
- Tomato plants with fruit
- Lettuce heads
- Carrots
- Pumpkin
- Appropriate tools
- Harvest baskets
- Gloves (optional)

WHAT TO DO
1. Continue from the previous page after demonstrating the harvesting techniques.
2. Follow all safety rules while handling tools and crops.
3. Your teacher will observe and assess your performance using the rubric.
4. Work neatly and carefully to produce good quality crops.
5. Listen to feedback and improve your skills.

THINK & IMPROVE!

CONTINUATION FROM PREVIOUS PAGE

Your teacher will now assess your demonstration using the criteria below.

TEACHER ASSESSMENT

CROPS ▶	TOOL HANDLING (Correct and safe use of tools)	CROP HANDLING (Care and proper handling of crops)	SAFETY (Follows safety rules and practices)	PRODUCE QUALITY (Good quality, minimal damage)	COMMENTS / FEEDBACK
1. TOMATO	☆ ☆ ☆ Excellent Good Needs Improvement	☆ ☆ ☆ Excellent Good Needs Improvement	☆ ☆ ☆ Excellent Good Needs Improvement	☆ ☆ ☆ Excellent Good Needs Improvement	_____
2. LETTUCE	☆ ☆ ☆ Excellent Good Needs Improvement	☆ ☆ ☆ Excellent Good Needs Improvement	☆ ☆ ☆ Excellent Good Needs Improvement	☆ ☆ ☆ Excellent Good Needs Improvement	_____
3. CARROT	☆ ☆ ☆ Excellent Good Needs Improvement	☆ ☆ ☆ Excellent Good Needs Improvement	☆ ☆ ☆ Excellent Good Needs Improvement	☆ ☆ ☆ Excellent Good Needs Improvement	_____
4. PUMPKIN	☆ ☆ ☆ Excellent Good Needs Improvement	☆ ☆ ☆ Excellent Good Needs Improvement	☆ ☆ ☆ Excellent Good Needs Improvement	☆ ☆ ☆ Excellent Good Needs Improvement	_____

SAFETY REMINDERS


Always use tools correctly and carefully.


Handle crops gently to avoid bruising and damage.


Keep your work area clean and free from hazards.


Report any accidents or injuries to your teacher immediately.

WHAT DOES SUCCESS LOOK LIKE?



- I used the right tools correctly.
- I handled the crops with care.
- I followed all safety rules.
- My harvested crops are clean and of good quality.

What did you do well today? What can you do better next time? _____

_____

_____

Name: _____

Date: _____

TOPIC

Harvesting & Marketing

SUB-TOPIC

Harvesting Techniques and Tools

ACTIVITY TYPE

System Design & Planning

TIME REQUIRED

30 Minutes

GROUP ACTIVITY

3 – 4 Students

MATERIALS NEEDED

- Tomato plants
- Harvest baskets or crates
- Secateurs
- Sharp knife
- Plastic harvest crates
- Worksheet
- Pencil

WHAT TO DO

1. Read the farm scenario carefully.
2. Discuss the best harvesting system with your group.
3. Complete the harvesting system table.
4. Present your harvesting system to the class.
5. Compare your system with another group's design.

HARVESTING EXERCISE

Skill: System Design & Planning

FARM SCENARIO

The school garden has ripe tomatoes that must be harvested today. Tomatoes bruise easily and lose quality if harvested incorrectly.

Your group must design the best harvesting system to keep the tomatoes fresh and ready for market.



PART 1 – DESIGN YOUR HARVESTING SYSTEM

Complete the planning table below.

HARVESTING STAGE	YOUR GROUP'S PLAN
Best time of day to harvest	
Harvesting tool(s) to use	
Container for collecting tomatoes	
Method of handling tomatoes	
Storage location after harvest	

FUN FACT!

Tomatoes are best harvested when they are fully coloured but still firm to the touch. This gives the best flavour and longest shelf life.

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools Book Two

Pages: 134 – 138

Name: _____

Date: _____

FARM-TO-TABLE FLOWCHART

Skill: Visual Mapping & Sequencing

TOPIC

Harvesting & Marketing

SUB-TOPIC

Importance of marketing steps involved in the marketing process.

ACTIVITY TYPE

Visual Mapping / Flowchart

TIME REQUIRED

10 Minutes

GROUP ACTIVITY

3 – 4 Students

MATERIALS NEEDED

- Worksheet
- Pencil / Pen
- Coloured pencils / Markers (optional)
- Reference book (optional)

WHAT TO DO

1. Read the task carefully.
2. Complete the flowchart by writing a short description for each step.
3. Draw arrows to show the correct flow from farm to consumer.



FARM SCENARIO

Tomatoes are a popular local crop. To reach the consumer, they go through many important steps.

Your group must create a flowchart to show the journey of tomatoes from the farm to the consumer's table.



PART 1 – CREATE THE FARM-TO-TABLE FLOWCHART

Write a short description for each step in the boxes below.
Draw arrows to show the correct flow from the farm to the consumer.

1 HARVEST



2 ASSEMBLING



3 TRANSPORTING



4 GRADING



5 PROCESSING



6 PACKAGING



7 STORAGE



8 PRICING



9 ADVERTISING



10 DISTRIBUTION



11 RETAIL / SALE



12 CONSUMER



FUN FACT!

Fresh tomatoes are best sold within 7–10 days after harvest to maintain quality, flavour and shelf life.



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools
Book Two
Pages: 158 – 165

Name: _____

Date: _____

Topic: Harvesting & Marketing

Sub-topic: Importance of Value Creation



PART 1 – SKILL ACTIVITY

ACTIVITY TYPE
Product Development

TIME REQUIRED
30 – 45 Minutes

GROUP ACTIVITY
3 – 4 Students

MATERIALS NEEDED
- Rejected or low-value produce (examples)
- Paper / Worksheet
- Pencil / Pen
- Coloured pencils / Markers
- Scissors, glue (optional)
- Packaging materials (bags, labels, stickers)

WHAT TO DO
1. Read the task carefully.
2. Develop a value-added product, create a brand name, design a label and packaging, and set a selling price.
3. Present your re-branded product to the class.



RE-BRANDING CHALLENGE

SKILL: PRODUCT DEVELOPMENT

FARM SCENARIO

Sometimes farmers have produce that is rejected or low in value.
Instead of wasting it, we can turn it into something new and valuable.
Your challenge is to re-brand a low-value product and give it new life!

PART 1 – CHOOSE YOUR LOW-VALUE PRODUCE

Choose one type of rejected or low-value produce to re-brand.
Tick (✓) the produce you will use.


Bruised Tomatoes ☐


Small Peppers ☐


Overripe Bananas ☐


Small Mangoes ☐


Bent Carrots ☐


Misshapen Cucumbers ☐

PART 2 – DEVELOP YOUR VALUE-ADDED PRODUCT & BRAND

Plan your product, brand, label, packaging and selling price using the spaces below.

1. VALUE-ADDED PRODUCT
What new product will you create?

_____
_____
_____



2. BRAND NAME
What is the name of your brand?

_____
_____
_____

3. PRODUCT LABEL DESIGN
Design your product label. Include name, logo, and product information.

4. PACKAGING DESIGN
Design the packaging for your product.

5. SELLING PRICE
How much will you sell your product for?

$ _____



FUN FACT!
Value-added products increase the worth of produce, reduce waste and create more income for farmers!



TEXTBOOK REFERENCE
Agricultural Science for Secondary Schools – Book Two
Pages: 170 – 175

Name: _____

Date: _____

Topic:
Harvesting & Marketing

Sub-topic:
Importance of Value Creation

RE-BRANDING CHALLENGE

Skill: Product Development

SCENARIO

Sometimes farmers have produce that is rejected or low in value.

Instead of wasting it, we can turn it into something new and valuable.

Your challenge is to re-brand a low-value product and give it new life!



ACTIVITY FOCUS

Develop a value-added product, create a brand, design a label and packaging, and set a selling price.

ACTIVITY TYPE

Product Development

TIME REQUIRED

30 – 45 Minutes

GROUP ACTIVITY

3 – 4 Students

MATERIALS NEEDED

- Rejected or low-value produce (examples)
- Paper / Worksheet
- Pencil / Pen
- Coloured pencils / Markers
- Scissors, glue (optional)

WHAT TO DO

1. Examine the rejected or low-value produce.
2. Develop a value-added product, create a brand name, design a label and packaging, and set a selling price.
3. Present your re-branded product to the class.



PART 1 – CHOOSE YOUR LOW-VALUE PRODUCE

Choose one type of rejected or low-value produce to re-brand.
Tick (✓) the produce you will use.


Bruised Tomatoes ☐


Small Peppers ☐


Overripe Bananas ☐


Small Mangoes ☐


Bent Carrots ☐


Misshapen Cucumbers ☐

PART 2 – DEVELOP YOUR VALUE-ADDED PRODUCT & BRAND

Plan your product, brand, label, packaging and selling price using the spaces below.

1. VALUE-ADDED PRODUCT

What new product will you create?

_____

_____

_____



2. BRAND NAME

What is the name of your brand?

_____

_____

_____



3. PRODUCT LABEL DESIGN

Design your product label. Include name, logo, and product information.

4. PACKAGING DESIGN

Design the packaging for your product.

5. SELLING PRICE

How much will you sell your product for?

$ _____



FUN FACT!

Value-added products increase the worth of produce, reduce waste and create more income for farmers!
Fund size: $50,000 GYD



TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools
Book Two
Pages: 164 – 167

Name: _____ | Topic: Swine Production | Sub Topic: Terms, Breeds & Types | Time Required: 20 mins

SWINE PRODUCTION

— TERMS, BREEDS & TYPES —

Know the terms used in swine production.

VIDEO LINK

Website: www.youtube.com

Video Link: Swine Terminology Bingo

PART 1 – SKILL ACTIVITY

Activity Type: Students say the terms for each pig listed.

Number of Persons per Activity: 3–5 students

Time Required: 20 mins

Tools & Equipment: Bingo cards, markers, pencils, notebook, projector or phone/tablet





An entire (uncastrated) male pig used for breeding.



A young female pig that has not yet had piglets.



An adult female pig that has had one or more litters.



A young pig, usually from birth to weaning.



A castrated male pig raised for meat production.



A pig that has been weaned from the sow, usually 4–8 weeks old.



FUN FACT

Pigs are very smart! They can learn tricks, solve problems, and remember things for a long time.

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Grade 8

Unit 5: Animal Production – Swine

Ministry of Education, Guyana

KNOW THE TERMS. LEARN THE BREEDS. IMPROVE PRODUCTION!

Name: _____

Topic: **Swine Production**

Sub-topic: **Breeds & Types**

Time Required: **20 mins**



VIDEO LINK

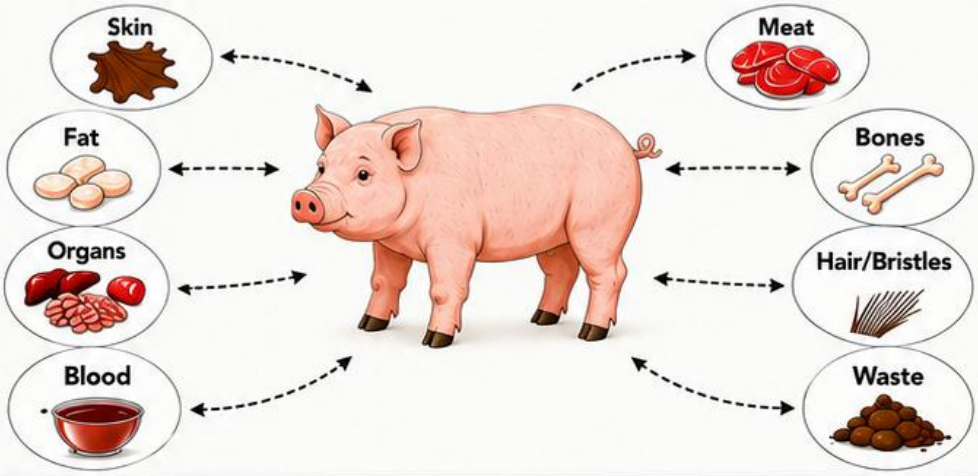
Watch: Introduction to Swine Production

https://www.fao.org/3/an186e/an186e00.htm

PART 1 – SKILL ACTIVITY: PIG'S VALUE ANALYSIS BRAINSTORM

INSTRUCTIONS:

1. Study the diagram of the pig.
2. Brainstorm and list all possible products and by-products that can be obtained from a single pig.



Activity Type: Students say terms for each pig part listed.

Number of Students per Activity: 3 – 5 students per group

Time Required: 20 minutes

Tools & Equipment:
- Chart paper
- Markers
- Pens / Pencils

MEAT PRODUCTS	FATS & OILS	SKIN & LEATHER	BY-PRODUCTS (EDIBLE)
• _____	• _____	• _____	• _____
• _____	• _____	• _____	• _____
• _____	• _____	• _____	• _____
• _____	• _____	• _____	• _____

INDUSTRIAL & HOUSEHOLD USES	AGRICULTURAL USES	OTHER PRODUCTS
• _____	• _____	• _____
• _____	• _____	• _____
• _____	• _____	• _____

FUN FACT!

A pig can provide up to 185 different products and by-products!



TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools
Grade 8
Unit 2: Swine Production
Pages 12 – 17

KEY TAKEAWAY

- ☑ Every part counts.
- ☑ Every product adds value.
- ☑ Smart production leads to better livelihoods.

KNOW THE VALUE. USE EVERY PART. BUILD A BETTER FUTURE!

Name: _____

Topic: **Swine Production**

Sub-topic: **Terms, Breeds & Types**



PART 1 – SKILL ACTIVITY

Activity Type: Information & Exploration

Tools & Materials: Worksheet, pencils, cards, markers

Individual / Group Activity: Group Activity

Number of Students per Group: 4 – 5 students

Time Required: 15 mins

SWINE PRODUCTION: TERMS, BREEDS & TYPES

Understanding key terms and identifying external parts of the pig helps us make better choices in swine production.



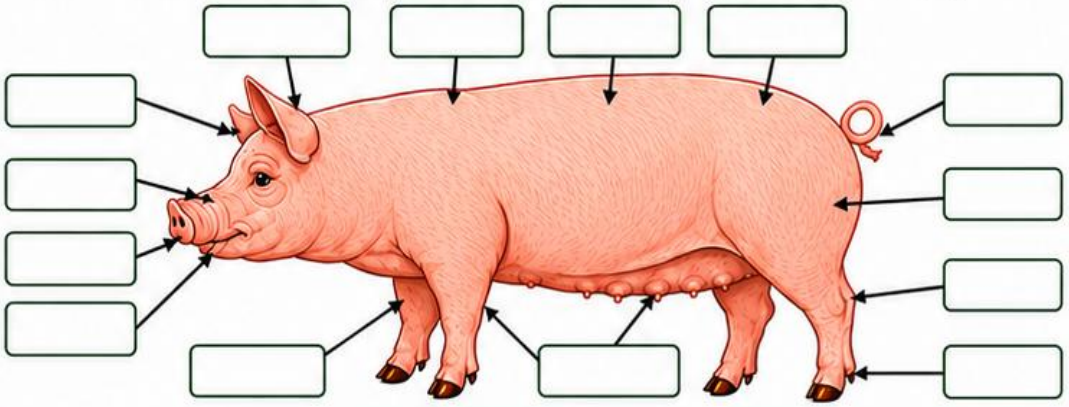
VIDEO LINK

Website: www.youtube.com

Video Link: Parts of a Pig

1 LABEL THE PIG

Write the correct term from the word bank on each line pointing to the pig.



WORD BANK

Ear	Eye	Forehead	Snout	Nostril	Mouth	Jowl	Neck	Shoulder	Back
Loin	Rump	Tail	Flank	Belly	Teats	Fore Leg	Knee	Hock	Dewclaw
Hoof (Trotter)		Hind Leg	Thigh						

2 THINK & APPLY

Answer the questions in the space provided.

1. Why is the snout an important part of a pig?

2. How do the hooves help pigs in their environment?

3. Why is the tail useful to a pig?

4. How can knowing the external parts of a pig help a farmer?

FUN FACT!



Pigs are very intelligent animals! They can recognize their names, learn simple tricks and even solve problems.

TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools Grade 8
Unit 1: Crop Production
Pages 5 – 7

REMEMBER

A good farmer considers all factors before choosing a crop or animal to ensure a successful and sustainable production.



Name: _____

Swine Production

Terms, Breeds & Types



Know the types and common breeds of swine reared in the Caribbean.

PART 1 – SKILL ACTIVITY

Activity Title:
Breed Cards

Activity Focus:
Create breed cards for Caribbean swine breeds and categorise them as Pork Type, Bacon Type, or Dual Purpose.

Time Required:
20 mins

Number of Students per Activity:
4 – 5 students per group

Tools & Materials:
- Cardstock or construction paper
- Markers / coloured pencils
- Ruler
- Scissors
- Glue or tape
- Reference materials (books, internet printouts)

BREED CARDS – CREATE AND CATEGORISE

Create cards for the common swine breeds reared in the Caribbean. Include the following information on each card and categorise the breed as Pork Type, Bacon Type or Dual Purpose.

- Litter Size
- Growth Rate
- Carcass Quality
- Mothering Ability
- Type (Pork / Bacon / Dual Purpose)

Instructions:

Research or use class resources to fill in the stats for each breed.

Design your cards neatly and creatively.

BREED CARD 1

Breed Name: _____

Litter Size: _____

Growth Rate: _____

Carcass Quality: _____

Mothering Ability: _____

Type (Pork / Bacon / Dual Purpose): _____

BREED CARD 2

Breed Name: _____

Litter Size: _____

Growth Rate: _____

Carcass Quality: _____

Mothering Ability: _____

Type (Pork / Bacon / Dual Purpose): _____

BREED CARD 3

Breed Name: _____

Litter Size: _____

Growth Rate: _____

Carcass Quality: _____

Mothering Ability: _____

Type (Pork / Bacon / Dual Purpose): _____

NOTES

VIDEO LINK

Website:
www.youtube.com

Video Link:
Swine Breeds in the Caribbean

TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools
Grade 8
Unit 2: Animal Production
Pages 10 – 14

FUN FACT!



Different swine breeds have unique strengths that help farmers produce the best quality pork!

REMEMBER



Knowing the breeds helps farmers choose the right pigs for their farms.

Name: _____	**Topic:** Swine Production	**Sub Topic:** Terms, Breeds & Types	**Time Required:** 20 mins

SWINE PRODUCTION

TERMS, BREEDS & TYPES

GRADE 8

Know the types and common breeds of swine reared in the Caribbean.

PART 1 – SKILL ACTIVITY

- **Activity Type:** Skill Activity
- **Number of Persons per Activity:** 3–5 students
- **Time Required:** 20 mins
- **Tools & Equipment:** Bristol board or card, markers, pencils, ruler, notebook, scissors



VIDEO LINK

Website:
www.youtube.com

Video Link:
Common Swine Breeds

BREED CARDS ACTIVITY

Create cards for Caribbean swine breeds. On each card, list litter size, growth rate, carcass quality, and mothering ability. Then classify each breed.

1. LARGE WHITE



Litter Size: _____
Growth Rate: _____
Carcass Quality: _____
Mothering Ability: _____
Type: _____

2. LANDRACE



Litter Size: _____
Growth Rate: _____
Carcass Quality: _____
Mothering Ability: _____
Type: _____

3. DUROC



Litter Size: _____
Growth Rate: _____
Carcass Quality: _____
Mothering Ability: _____
Type: _____

4. HAMPSHIRE



Litter Size: _____
Growth Rate: _____
Carcass Quality: _____
Mothering Ability: _____
Type: _____

BREED CATEGORIES

PORK TYPE	BACON TYPE	DUAL PURPOSE
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

NOTES

_____
_____
_____
_____
_____
_____

FUN FACT

Many swine breeds are selected for fast growth, good meat quality, and strong mothering ability.

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools – Grade 8
Unit 5: Animal Production – Swine
Ministry of Education, Guyana

Name: _____

Topic: **Swine Production**

Sub-topic: Digestion, Feeding & Housing

Time Required: 20 mins



PART 1 – PRACTICAL SKILL ACTIVITY

Activity Type:
Practical Skill Activity

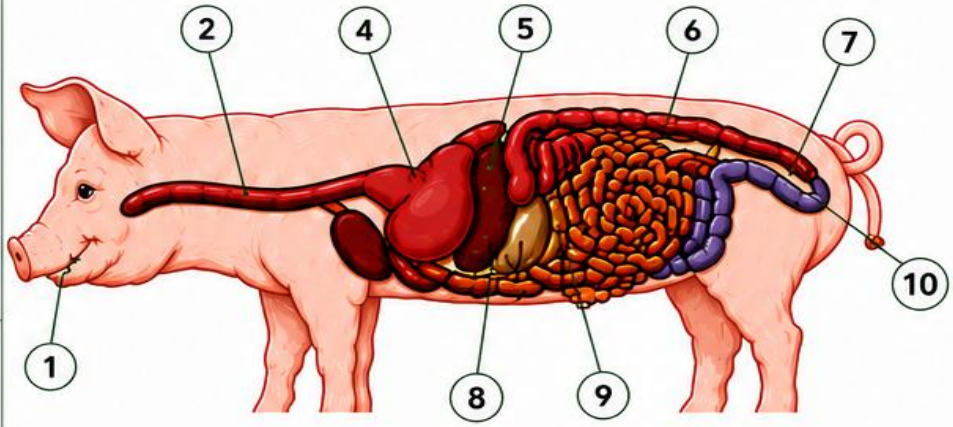
Tools & Materials:
Cardboard or shoebox, balloons, straws, clay or play dough, yarn, tape, labels, glue, markers, scissors

Time Required:
20 mins

Number of Students per Group:
4 – 5 students

THE PIG'S DIGESTIVE TRACT

A. Label each organ and trace the path of food from mouth to anus.



B. Fill in the blanks – Name the Pig's Digestive Organs

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

VIDEO LINK

Website: www.youtube.com
Video Link:
The Pig Digestive System Explained (for Students)

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools
Grade 8
Unit 2: Animal Production
Pages 10 – 12

FUN FACT!

A pig's digestive system is very efficient! They can digest a wide variety of foods and turn it into energy for growth.

REMEMBER

Good nutrition, clean water, proper housing and good management lead to healthy pigs and better profits!

NOTES

Name: _____

Topic: **Swine Production**

Sub-topic: **Digestion, Feeding & Housing**



PART 1 – PRACTICAL SKILLS

Activity Type:
Matching & Scrapbook

Tools & Materials:
Worksheet, pictures, glue, scissors, coloured pencils, magazines

Individual / Group Activity:
Individual or Group

Number of Students per Group:
3 – 5 students

Time Required:
15 mins

Swine Feeding Systems



Pigs need proper feed and good feeding systems to grow healthy and strong.

Match each type of feeding system to the correct pictures and descriptions.

VIDEO LINK

Website: www.youtube.com

Video Link: Swine Feeding Systems

INSTRUCTIONS:

1. Study the six types of feeding systems (A–F) and their descriptions (a–f).
2. Match each feeding system to the correct pictures (1–6).
3. Match each feeding system to the correct descriptions (a–f).
4. Create a scrapbook showing examples of feeds used in swine production.
5. Present your scrapbook to the class.

PICTURES (1–6)













DESCRIPTIONS (a–f)

a Feed is placed in a trough where pigs eat together.

b Feed is kept in a dispenser that allows pigs to eat whenever they want.

c Feed is placed directly on the floor.

d Feed is stored in a hopper and flows down automatically as pigs eat.

e Feed is delivered automatically through pipes or augers at scheduled times.

f Feed is given by hand using a bucket or scoop.

FUN FACT!



Pigs can eat a wide variety of feeds and convert them efficiently into meat. Good feeding and housing lead to healthy pigs and higher profits!

TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools
Grade 8
Unit 2: Animal Production
Pages 20 – 28

REMEMBER

Proper feeding and housing systems reduce waste, prevent disease and improve growth.

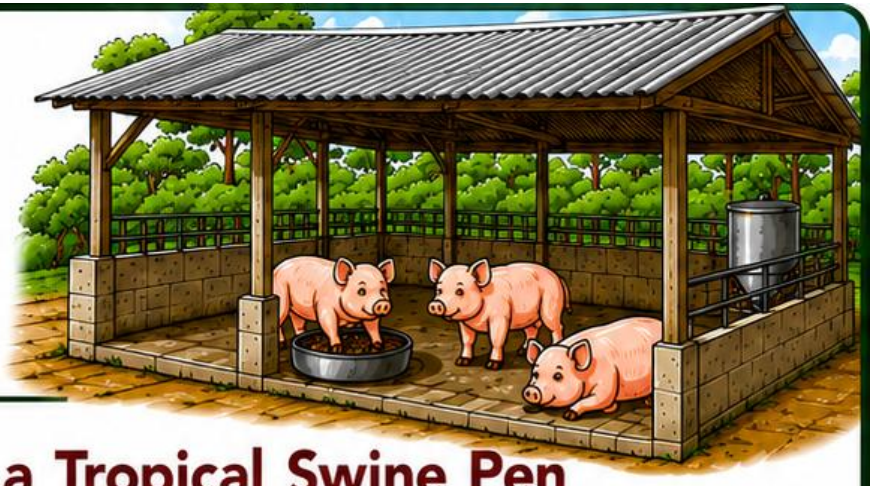


Name: _____

Topic: Swine Production

Sub-topic: Digestion, Feeding & Housing

Time Required: 20 mins



PART 1 – SKILL ACTIVITY

Activity Type:
Design & Presentation

Tools & Materials:
Worksheet, ruler, pencil, coloured pencils, markers, poster paper

Individual / Group Activity:
Group Activity

Number of Students per Group:
3 – 5 students

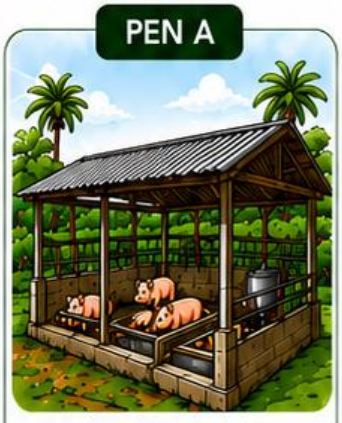
Time Required:
20 mins

Design a Tropical Swine Pen

Pigs need a safe, comfortable and healthy home.
Design a tropical swine pen that meets their needs.



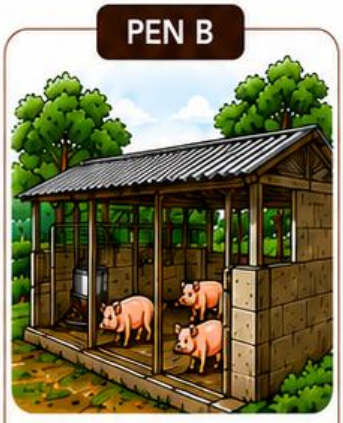
PEN A



Key Features:

- _____
- _____
- _____
- _____
- _____
- _____

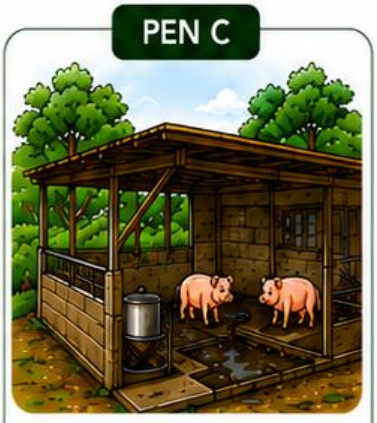
PEN B



Key Features:

- _____
- _____
- _____
- _____
- _____
- _____

PEN C



Key Features:

- _____
- _____
- _____
- _____
- _____
- _____

VIDEO LINK

Website: www.youtube.com
Video Link: Designing a Simple Pig Pen for Tropical Farming

FUN FACT!



Pigs do not sweat. They stay cool by resting in shade, wallowing in mud and having good ventilation in their housing.

TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools
Grade 8
Unit 2: Animal Production
Pages 22 – 27

REMEMBER



Good housing reduces stress, prevents disease and helps pigs grow faster and healthier.

Name: _____ | Topic: Swine Production | Sub-topic: Pens, Breeding & Identification | Time Required: 20 mins



SWINE PRODUCTION

PENS, BREEDING & IDENTIFICATION



Know the types of pens used in swine production.

PART 1 – PRACTICAL SKILLS

1. **Activity Type:** Pen Purpose Match-Up & Model Building
2. **Tools & Materials:** worksheet, pictures, glue, scissors, recycled materials, cardboard, popsicle sticks, markers
3. **Individual / Group Activity:** Group Activity
4. **Number of Persons per Activity:** 3–5 students
5. **Time Required:** 20 mins

Pen Purpose Match-Up

Match each pen type (farrowing crate, weaner pen, boar pen, gestation crate) to the specific stage of the pig's life cycle, and build a model of one pen type.

VIDEO LINK

Website: www.youtube.com

Video Link: Types of Swine Pens

FOUR TYPES OF PENS

A. Farrowing Crate



- for pregnant sow and nursing piglets
- protects piglets
- easy feeding and care

B. Weaner Pen



- for weaned piglets
- safe space
- feed and water access

C. Boar Pen



- for breeding boars
- strong walls/gates
- safe handling

D. Gestation Crate



- for pregnant sows
- controls movement
- helps feed management

PIG LIFE CYCLE STAGES (Match I–IV)

I. Weaned piglets (about 4–8 weeks old) ◯

II. Growing/finishing pigs (after weaning to market) ◯

III. Breeding boars (used for mating) ◯

IV. Pregnant sows (gestation period) ◯

PEN TYPES (Match A–D)

◯ A. Farrowing Crate

◯ B. Weaner Pen

◯ C. Boar Pen

◯ D. Gestation Crate

MODEL BUILDING TASK



Choose ONE pen type and build a simple model using recycled materials. Label the key parts.

FUN FACT!



A clean, comfortable pen can improve pig growth and health.

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools, Grade 8, Unit 2: Animal Production, Ministry of Education, Guyana

PPE REMINDER



Always wear proper PPE when working with animals.

REMEMBER



The right pen for the right stage keeps pigs healthy, reduces stress, and improves growth.

Name: _____

Topic: Swine Production

Sub-topic: Pens, Breeding & Identification

Time Required: 20 mins



DESIRABLE QUALITIES SCAVENGER HUNT

Understand the importance of breeding and identify desirable qualities in swine.

Review the Selection Cards. Identify desirable and undesirable qualities, cull poor-quality animals, and select the best breeders. Give a written justification for each choice.

VIDEO LINK

Website: www.youtube.com

Video Link: Selecting Good Breeding Pigs

PART 1 – PRACTICAL SKILLS

1. **Activity Type:** Desirable Qualities Scavenger Hunt
2. **Practical Skills:** Observe body shape, legs, health, mothering ability, and growth traits; select good breeders and cull poor-quality animals.
3. **Tools & Materials:** selection cards, worksheet, pens/pencils, markers, glue, scissors.
4. **Number of Persons per Activity:** 3 – 5 students
5. **Time Required:** 20 mins

SELECTION CARDS

A



- strong legs
- long body
- healthy skin
- alert eyes

Decision: Select / Cull

_____

_____

_____

B



- wide chest
- good back
- fast growth
- good mothering ability

Decision: Select / Cull

_____

_____

_____

C



- weak legs
- thin body
- rough coat
- poor growth

Decision: Select / Cull

_____

_____

_____

D



- poor body condition
- narrow frame
- weak back
- unhealthy appearance

Decision: Select / Cull

_____

_____

_____

BEST BREEDER CHOICES

Best breeder(s): _____

Cull animal(s): _____

Reason for my choice: _____

_____

_____

_____

PPE REMINDER

Gloves | Boots | Overalls | Safety Hat

Always wear proper PPE when working with animals.

FUN FACT!

Good breeding stock improves growth, health, litter quality, and farm profit.

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools, Grade 8,
Unit 2: Animal Production – Swine

REMEMBER

Choose healthy, strong, active pigs with good body shape and sound legs for breeding.

Name: _____

Topic: **Swine Production**

Sub-topic: **Pens, Breeding & Identification**

Time Required: 20 mins



PART 1 – PRACTICAL SKILL ACTIVITY

DESIRABLE QUALITIES SCAVENGER HUNT

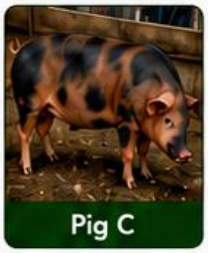
Review the 'Selection Cards' showing pigs with different qualities. Cull the poor-quality animals and select the best breeders. Provide a written justification for each choice based on the desirable qualities listed below.

A. Examine each pig in the Selection Cards.

Decide whether to keep (select) or cull (reject) each one.


Pig A


Pig B


Pig C


Pig D


Pig E

B. Record your decisions and justifications.

Pig ID	Keep or Cull (Select/Reject)	Justification (Why you chose to keep or cull)
Pig A		
Pig B		
Pig C		
Pig D		
Pig E		

C. Desirable Qualities to Consider:

- Good body conformation (strong back, deep body, well-muscled)
- Correct leg structure (straight, strong legs and feet)
- Healthy appearance (bright eyes, clean skin, alert)
- Good growth potential (size and body condition)
- Good mothering ability (well-formed udder/teats)
- Overall balance and structure

TOOLS & MATERIALS:

- Selection Cards (pig photos)
- Worksheet
- Pencil
- Clipboard or notebook
- Pen



ACTIVITY TYPE:

Practical Skill Activity



NUMBER OF STUDENTS PER GROUP:

4 – 5 students



TIME REQUIRED:

20 mins



VIDEO LINK

Website: www.youtube.com

Video Link:
Selecting the Best Breeding Pigs – Qualities to Look For

TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools
Grade 8
Unit 2: Animal Production
Pages 22 – 25

FUN FACT!



Good breeding choices today lead to healthier pigs, better production and more profits tomorrow!

Name: _____

Topic: Swine Production

Sub-topic: Diseases & Pests



PART 1 – SKILL ACTIVITY

Activity Type: Symptom Matching

Tools & Materials: Patient files, worksheet, pens/pencils

Individual / Group Activity: Group Activity

Number of Students per Group: 4 – 5 students

Time Required: 15 mins

Farmer's Dilemma' Activity: Symptom Matching

Read each "Patient File" describing a pig's symptoms. Match it with the correct disease or pest from the choices on the right. Write the letter of your answer on the line.

PATIENT FILES

1. 
   High fever, loss of appetite, red blotches on skin, constipation followed by diarrhoea. _____

2. 
   Pale skin and gums, weakness, poor growth, rough hair coat. _____

3. 
   Pot-bellied appearance, poor growth, diarrhoea, worms seen in faeces. _____

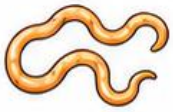
4. 
   Constant scratching, hair loss, red spots on skin. _____

5. 
   Severe itching, thick scabs, cracked skin, poor growth. _____

DISEASES & PESTS (CHOICES)

A. HOG CHOLERA 

B. ANAEMIA 

C. ROUNDWORM 

D. LICE 

E. MITES 

FUN FACT!



Healthy pigs grow faster, have fewer diseases, and help farmers earn more income!

VIDEO LINK

Website: www.youtube.com

Video Link: Swine Diseases & Pests

REMEMBER

Clean pens, balanced feed, and regular health checks keep pigs healthy and farms successful.



TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools
Grade 8
Unit 2: Animal Production
Pages 18 – 22

Name: _____

Topic: Swine Production

Sub-topic: Diseases & Pests

Time Required: 15 mins

SWINE PRODUCTION

DISEASES & PESTS



Create 'Wanted' posters for common swine pests. Fill in the information to show what they look like, where they live, the problems they cause, and how to control them.

PART 1 – SKILL ACTIVITY

Activity Type:
Pest Wanted Posters

Tools & Materials:
Worksheet, pencils, colored pencils/markers, poster paper

Individual / Group Activity:
Group Activity

Number of Students per Group:
4 – 5 students

Time Required:
15 mins

WANTED

LICE



LOCATION:
- ☐ External (on skin and hair)
- ☐ Internal (inside the body)

PROBLEMS CAUSED:
- Causes itching and irritation
- Hair loss
- Restlessness
- Poor growth

RECOMMENDED CONTROL:
- _____
- _____
- _____

WANTED

MITES



LOCATION:
- ☐ External (on skin)
- ☐ Internal (inside the body)

PROBLEMS CAUSED:
- Causes severe itching
- Scabs and thick skin
- Skin irritation
- Poor growth

RECOMMENDED CONTROL:
- _____
- _____
- _____

WANTED

ROUNDWORM



LOCATION:
- ☐ External (on skin)
- ☐ Internal (inside the body)

PROBLEMS CAUSED:
- Lives in intestines
- Pot-bellied appearance
- Diarrhoea
- Poor growth

RECOMMENDED CONTROL:
- _____
- _____
- _____

WANTED

EAR MITE



LOCATION:
- ☐ External (in ear canal)
- ☐ Internal (inside the body)

PROBLEMS CAUSED:
- Causes head shaking
- Ear scratching
- Ear irritation and sores
- Poor growth

RECOMMENDED CONTROL:
- _____
- _____
- _____

WANTED

LUNGWORM



LOCATION:
- ☐ External (on skin)
- ☐ Internal (inside the body)

PROBLEMS CAUSED:
- Lives in lungs
- Coughing and difficulty breathing
- Poor growth
- Pneumonia

RECOMMENDED CONTROL:
- _____
- _____
- _____

TEXTBOOK REFERENCE



Agricultural Science
for Secondary Schools
Grade 8
Unit 2: Animal Production
Pages 18 – 22

REMEMBER



Clean pens, balanced feed, and regular health checks keep pigs healthy and farms successful.

VIDEO LINK

Website:
www.youtube.com

Video Link:
Swine Pests and Disease Control

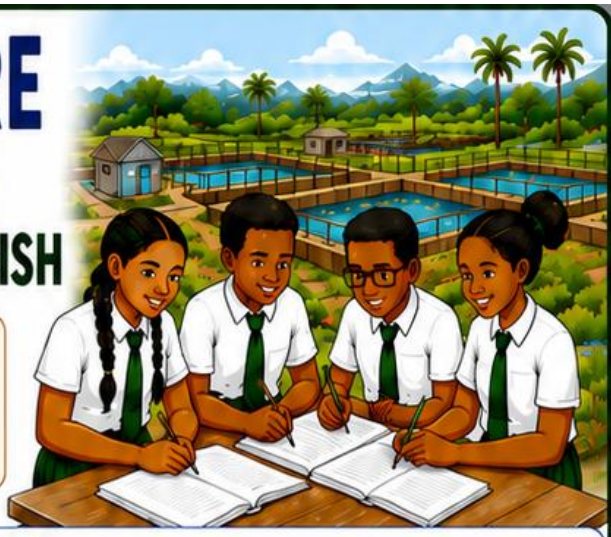
Name: _____

Topic: Fish Culture (Aquaculture)

Sub-topic: Classification of Fish

FISH CULTURE
(AQUACULTURE)
CLASSIFICATION OF FISH





Recognise the importance of fish culture and their classification.

PART 1 – SKILL ACTIVITY

Activity Type:
Practical / Data Collection & Presentation

Tools & Materials:
Books, internet connection, fish identification chart, worksheets, pencils, ruler, markers, poster paper or chart paper.

Number of Students per Group:
4 – 5 students

Time Required:
20 minutes

Individual / Group Activity:
Group Activity

HABITAT (WHERE THEY LIVE)

FRESHWATER
Live in rivers, lakes, ponds and streams.

SALTWATER
Live in the sea (oceans).

BODY COVERING (WHAT COVERS THEIR BODY)

SCALED
Body is covered with scales.

UNSCALED
Body has no scales (smooth skin).

PART 1 – FILL IN THE TABLE

Research and complete the table below.

No.	FISH (COMMON NAME)	HABITAT (Freshwater or Saltwater)	SCALED OR UNSCALED	NOTES / FUN FACTS (Habitat, Food, Use, etc.)
1.	Tilapia 			
2.	Parrotfish 			
3.	Red Snapper 			
4.	Catfish 			
5.	Mullet 			
6.	Lionfish 			
7.	Tarpon 			
8.	Eel 			

VIDEO LINK:
https://www.youtube.com/watch?v=3vX2k8FQl9w

FUN FACT!



Fish is a great source of protein and helps build strong bodies and brains!



TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools
Grade 8
Unit 1: Fish Culture (Aquaculture)
Pages 12 – 15

REMEMBER



Healthy fish, clean water, and proper care lead to successful fish culture!

Name: _____

Topic: Fish Culture (Aquaculture)

Sub-topic: Pond Construction

FISH CULTURE
(AQUACULTURE)
POND CONSTRUCTION





PART 1 – SKILL ACTIVITY

Activity Type:
Practical / Model Construction

Tools & Materials:
Clay, cardboard, plastic containers, sand, glue, scissors, markers, coloured paper, sticks, recycled materials.

Individual / Group Activity:
Group Activity

Number of Students per Group:
4 – 5 students

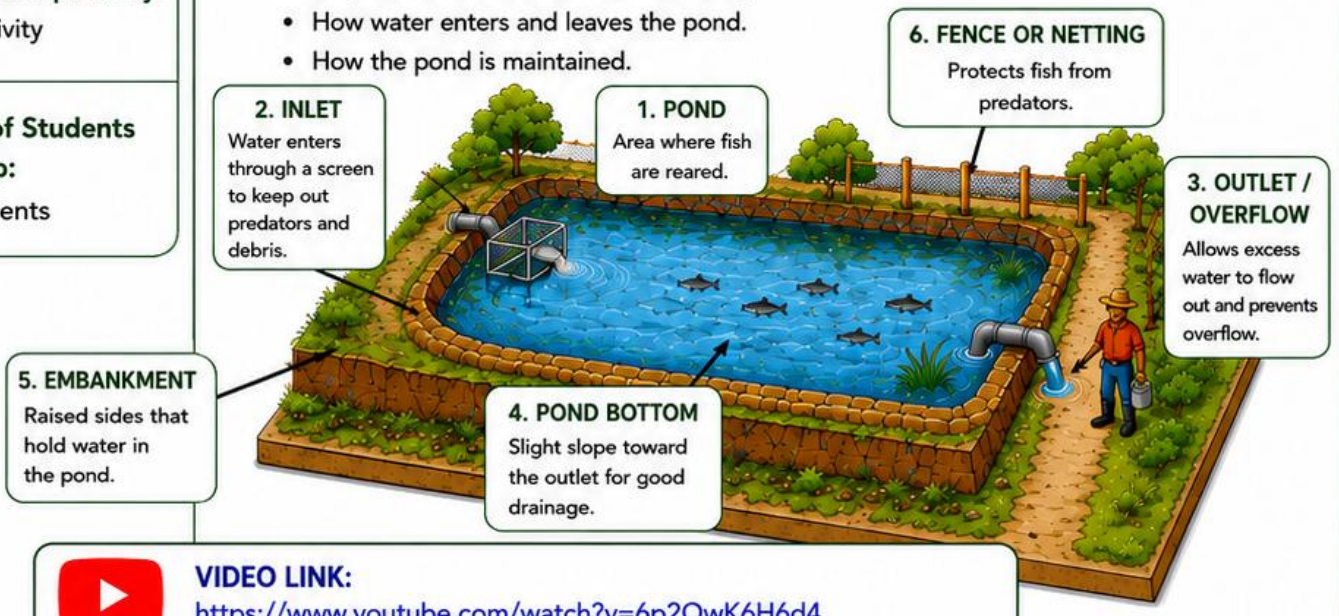
PART 2 – 3D FISH POND MODEL PROJECT

ACTIVITY: DESIGN A 3D FISH POND MODEL

Create a 3D model of a fish pond showing the important features needed for successful fish farming.

INSTRUCTIONS

1. Construct a model of a fish pond using recycled or craft materials.
2. Label the following parts on your model:
   - Pond
   - Inlet
   - Outlet / Overflow
   - Pond Bottom
   - Embankment
   - Fence or Netting
3. Include these features:
   - Good source of clean water
   - Well-drained soil
   - Gentle slope toward the outlet
   - Protection from predators
   - Easy access for feeding and harvesting
4. Decorate your model with trees, grass, pathways, or a farmer to make it realistic.
5. Write three sentences explaining:
   - Why the site is suitable for fish farming.
   - How water enters and leaves the pond.
   - How the pond is maintained.



VIDEO LINK:
https://www.youtube.com/watch?v=6p2QwK6H6d4

FUN FACTS!



- Fish ponds should have a reliable supply of clean water.
- Pond embankments help keep water inside the pond.
- A well-designed pond makes feeding and harvesting easier.
- Fish farming provides food and income for many families in the Caribbean.

TEXTBOOK REFERENCE

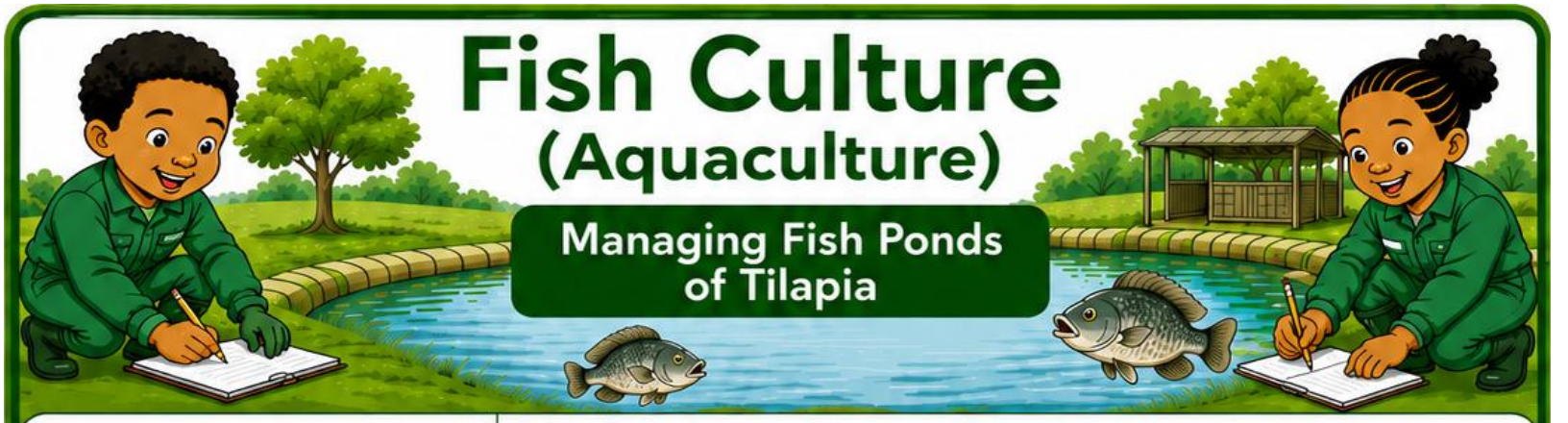


Agricultural Science for Secondary Schools
Grade 8
Unit 1: Fish Culture (Aquaculture)
Pages 12 – 15

REMEMBER



A well-constructed pond ensures healthy fish, good growth and a successful fish farm.



Fish Culture (Aquaculture)

Managing Fish Ponds of Tilapia

Name: _____

Topic:
Fish Culture (Aquaculture)

Sub Topic:
Managing Fish Ponds of Tilapia

Tools & Materials
- Pen / Pencil
- Ruler
- Worksheet

Time Required
10 mins

Number of Students per Group
3 – 4 Students

PART 1 – SKILL ACTIVITY

1. Activity 1: Components of a Well-Managed Fish Pond

List and describe four (4) important components of a well-managed fish pond.

No.	Component	Description / Function
1		
2		
3		
4		

2. Activity 2: Causes of Poor Pond Management

State three (3) possible causes of poor fish pond management.

1. _____
2. _____
3. _____



FUN FACT!

Tilapia can grow fast and reproduce quickly. With good pond management, farmers can harvest more fish in less time and earn more income!



TEXTBOOK REFERENCE

Agricultural Science for Junior Secondary Schools

Book 2 – **Pages 60–64**

VIDEO LINK

Watch: Managing Tilapia Ponds for Beginners

https://youtu.be/8dQw4w9WgXQ



Fish Culture (Aquaculture)

Diseases & Predators of Tilapia



Name: _____

Topic: Fish Culture (Aquaculture) **Sub Topic:** Diseases & Predators of Tilapia

Part 1 – Skill Activity

Tools & Materials
- Pen / Pencil
- Ruler
- Worksheet

Time Required
10 mins

Number of Students per Group
3 – 4 Students

1. Activity 1: Identify Diseases and Predators of Tilapia

Complete the table below.

No.	Diseases / Predators	Causes	Signs	Prevention
1	Bacterial Disease			
2	Fungal Disease			
3	Bird Predators			
4	Snake Predators			
5	Frogs			
6	Monitor Lizards			

FUN FACT!

Tilapia are very hardy fish! They can grow in different water conditions and reproduce quickly. This is why they are popular and easy to farm in many countries.



TEXTBOOK REFERENCE

Agricultural Science for Junior Secondary Schools

Book 2 – **Pages 54–59**





VIDEO LINK
Watch: Diseases & Predators of Tilapia
https://youtu.be/8dQw4w9WgXQ



Fish Culture (Aquaculture)

Managing Fish Ponds, Diseases & Predators of Tilapia

Name: _____

Topic: Fish Culture (Aquaculture)

Sub Topic: Managing Fish Ponds, Diseases & Predators of Tilapia

LEARNING OBJECTIVE:

Understand the benefits of effective management of a fish pond in fish farming.

PART 1 – SKILL ACTIVITY

Activity 1: Good Fish Pond Management Practices

List four (4) important practices for managing a fish pond well and state why each one is important.

No.	Management Practice	Importance
1		
2		
3		
4		

Activity 2: Diseases & Predators of Tilapia

Complete the table by identifying common diseases or predators of tilapia and one way to prevent each problem.

No.	Disease / Predator	Prevention
1		
2		
3		
4		

1. Tools & Materials

- Pen / Pencil
- Ruler
- Worksheet
- Notebook



2. Time Required

20 mins



3. Number of Students per Group

3 – 4 Students



4. FUN FACT!

Tilapia are hardy fish that grow quickly. Good pond management helps farmers produce more fish and reduce losses from diseases and predators.



5. TEXTBOOK REFERENCE

Agricultural Science for Junior Secondary Schools
Book 2 – Pages 54–64



6. VIDEO LINK

Watch: Fish Pond Management and Tilapia Care
https://youtu.be/8dQw4w9WgXQ

Name: _____

Topic: Fish Culture (Aquaculture)

Sub-topic: Harvesting Fish



PART 1 – PRACTICAL ACTIVITY

1. ACTIVITY TYPE
Practical Skill / Activity Book Task

2. TOOLS & MATERIALS
- Pen / Pencil
- Ruler
- Worksheet
- Colouring Materials

3. GROUP ACTIVITY
3–4 students per group

4. TIME REQUIRED
10 minutes

Use the activity panels below to identify and label harvesting equipment: casting nets, seines, hook and rod, and pond draining. Write a short note, one advantage, and one disadvantage for each technique.

1 CASTING NETS



How it works: _____

Advantages: _____

Disadvantages: _____

2 SEINES



How it works: _____

Advantages: _____

Disadvantages: _____

3 HOOK AND ROD



How it works: _____

Advantages: _____

Disadvantages: _____

4 POND DRAINING



How it works: _____

Advantages: _____

Disadvantages: _____

FUN FACT!

Tilapia can grow very fast. Under good conditions, they can double their weight in just 3 to 4 months.



TEXTBOOK REFERENCE

Agricultural Science for Junior Secondary Schools, Book 2 – **Pages 54–59**

Name: _____

Topic: **Farm Records**

Sub-topic: **Record Keeping & Record Formats**



PART 1 – SKILL ACTIVITY

ACTIVITY TYPE

Research, Planning, Record Keeping, Data Analysis & Group Comparison

TOOLS & MATERIALS

Notebook, Pen/Pencil, Ruler, Calculator, Worksheet, Chart Paper, Markers, Sample Records

GROUP ACTIVITY



3 – 4 students per group

TIME REQUIRED

20 mins

VIDEO LINK

https://youtu.be/ f9a8KJ2Qk8

EXAMPLES OF RECORDS

EXAMPLE 1: PRODUCTION RECORD

Crop: Lettuce

Period: 1st May – 31st May 2025

Date	Activity	Quantity (kg)	Remarks
01/05	Planted seedlings	–	Variety: Grand Rapids
08/05	Applied fertilizer	–	Organic compost
15/05	Weeding	–	–
22/05	Harvested	45	Good quality
29/05	Harvested	40	–
TOTAL		85 kg	

EXAMPLE 2: FINANCIAL RECORD (CASH BOOK)

Farm: Green Future Farm

Period: May 2025

DATE	DESCRIPTION	RECEIPTS ($)	PAYMENTS ($)
01/05	Cash in hand	500.00	–
05/05	Sold lettuce	240.00	–
07/05	Bought fertilizer	–	80.00
10/05	Bought seeds	–	40.00
20/05	Sold lettuce	300.00	–
25/05	Transport	–	30.00
31/05	Cash in hand	–	890.00
TOTAL		1,040.00	1,040.00

EXAMPLE 3: PROFIT & LOSS ACCOUNT

Green Future Farm

For the Month Ended 31st May 2025

INCOME	AMOUNT ($)
Sales (lettuce)	540.00
Total Income	540.00
EXPENSES	**AMOUNT ($)**
Fertilizer	80.00
Seeds	40.00
Transport	30.00
Other expenses	20.00
Total Expenses	170.00
NET PROFIT	370.00

FUN FACT!

Good record keeping helps farmers make better decisions, reduce waste, increase profits and plan for the future!

TEXTBOOK REFERENCE

Agricultural Science for Junior Secondary Schools Book 2 – **Pages 60 – 65**

Name: _____

Topic: Farm Management

Sub Topic: Farm Records



- Use a farm diary to record daily garden events; compare records across groups

PART 1 – SKILL ACTIVITY

Skills:	Tools & Equipment:	Group Activity:	Time Required:
Record Keeping & Analysis	Pen/Pencil, Ruler, Calculator, Worksheet, Farm Diary	3–4 students per group	20 minutes

Record the garden production and the income and expenses for the week.

1 PRODUCTION RECORD

Record the garden production for the week.

Garden: _____ Week: _____

Date	Crop	Activity (Planted, Watered, Fertiilized, Harvested, etc.)	Quantity	Unit (kg, pcs, bunch, etc.)
TOTAL HARVEST				

2 FINANCIAL RECORD

Record all income and expenses for the week.

Garden: _____ Week: _____

INCOME

Date	Description	Amount (₱)
TOTAL INCOME		

EXPENSES

Date	Description	Amount (₱)
TOTAL EXPENSES		

NET INCOME (Total Income – Total Expenses) = ₱ _____

FUN FACT!

Farms that keep good records can save money, avoid waste, and earn more!
Good records today, better harvests tomorrow!

TEXTBOOK REFERENCE

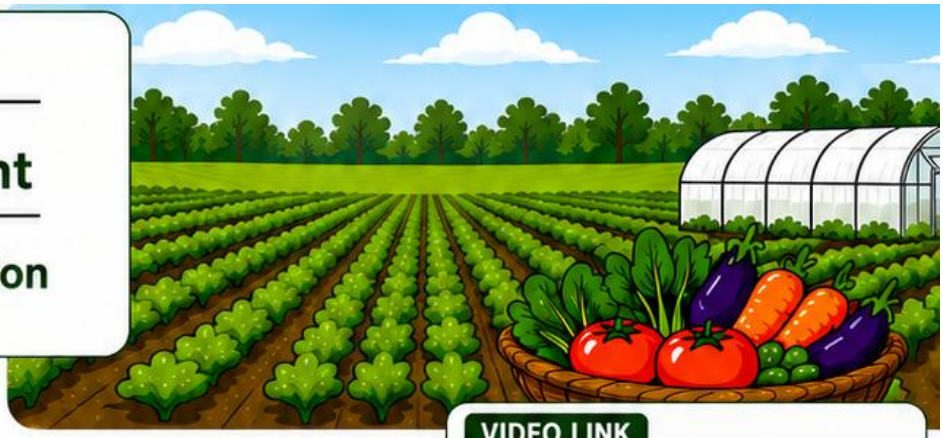
EPP 7: Quarter 1 – Lesson 1
"Farm Business and Record Keeping"
Pages 10–15

Good planning today, bountiful harvest tomorrow!

Name: _____

Topic: Farm Management

Sub-topic: Factors of Production



PART 1 – SKILL ACTIVITY

VIDEO LINK
https://youtu.be/9QX6mJ8Z1fA

ACTIVITY TYPE
Research, Planning, Presentation & Role Play

TOOLS & MATERIALS
Pen/Pencil, Ruler, Calculator, Worksheet, Chart Paper, Markers, Farm Images

GROUP ACTIVITY
3 – 4 students per group

TIME REQUIRED
20 mins

PART 2 – GROUP FARM PLAN

Group Farm Plan — research the factors of production (land, labour, capital, management) and create a simple farm plan for a vegetable farm, identifying required resources; present findings including a role play of a farmer-banker financing interview.

SIMPLE VEGETABLE FARM PLAN

RESOURCE (Factor)	DESCRIPTION	REQUIRED RESOURCES	ESTIMATED COST (₱)
1. Land			
2. Labour			
3. Capital			
4. Management			
TOTAL ESTIMATED COST			₱ _____

ROLE PLAY ACTIVITY – FARMER-BANKER FINANCING INTERVIEW

Farmer's Role

- Present the farm plan.
- Explain the resources needed.
- State the total estimated cost.
- Explain how the loan will be used and how it will be repaid.

Banker's Role

- Ask questions about the farm plan.
- Evaluate the plan and costs.
- Decide whether to approve the loan request.

FUN FACT!
Soil is one of the most important factors in farming. A handful of healthy soil can contain more living organisms than there are people on Earth!

TEXTBOOK REFERENCE
Agricultural Science for Junior Secondary Schools Book 2 – **Pages 54–59**

Name: _____

Topic: **Budgeting**

Sub-topic: **Farm Budgeting**



PART 1 – SKILL ACTIVITY

ACTIVITY TYPE

Planning, Budgeting, Cost Analysis & Record Preparation

TOOLS & MATERIALS



Notebook, Pen/Pencil, Ruler, Calculator, Worksheet, Budget Template, Markers

GROUP ACTIVITY



3 – 4 students per group

TIME REQUIRED

20 mins

VIDEO LINK

https://youtu.be/f9a8KJ2Qk8

ACTIVITY INSTRUCTIONS

- Develop a positive attitude towards the importance of budgeting in agriculture.
- Create a partial budget for a fictional farm situation.
- Create a complete budget using the correct budgeting format.
- Write a short cost analysis comparing the two budget types.

EXAMPLES OF BUDGETS

EXAMPLE 1: PARTIAL BUDGET

Tomato Plot Improvement

Additions / Increased Income	
Higher tomato sales	$300
Savings on water use	$50
Reductions / Decreased Income	
None	$0
Additions / Increased Costs	
Mulch purchase	$80
Extra labour	$60
Reductions / Decreased Costs	
Less fertilizer waste	$40
Net Change	**$250**

EXAMPLE 2: COMPLETE BUDGET

Green Valley Lettuce Farm – Monthly Budget

INCOME	
Sales of lettuce	$900
Sales of seedlings	$150
Total Income	**$1,050**
EXPENSES	
Seeds	$120
Fertilizer	$100
Transport	$80
Labour	$200
Water & utilities	$50
Other expenses	$50
Total Expenses	**$600**
Net Return	**$450**

EXAMPLE 3: COST ANALYSIS

	Partial Budget	Complete Budget
Purpose	Change in one part of the farm	Overall farm planning
Scope	Specific decision	Full farm operation
Best use	Testing improvements	Planning all costs and returns
Detail level	Shorter	More detailed
Decision value	Quick comparison	Full financial picture

FUN FACT!

A good budget helps farmers control spending, plan ahead, and make better decisions for profit.

TEXTBOOK REFERENCE

Agricultural Science for Junior Secondary Schools Book 2 – **Pages 66 – 70**

Name: _____

Topic: **Budgeting**

Sub-topic: **Farm Budgeting**



PART 1 – SKILL ACTIVITY

ACTIVITY TYPE

Practical budgeting, cost analysis, record preparation & group work

TOOLS & MATERIALS

Notebook, pen/pencil, ruler, calculator, worksheet, budget template, markers

GROUP ACTIVITY



3–4 students per group

TIME REQUIRED

20 mins

VIDEO LINK

https://youtu.be/f9a8KJ2Qk8

ACTIVITY INSTRUCTIONS

- Develop a positive attitude towards the importance of budgeting in agriculture.
- Create a partial budget for a fictional farm.
- Create a complete budget using the correct format.
- Write a cost analysis comparing budget types.



BUDGET WORKSHEET – COMPLETE THE ACTIVITIES

ACTIVITY 1: PARTIAL BUDGET

Fictional Farm Scenario

Farm Name: _____

Additions / Increased Income	
Reductions / Decreased Income	
Additions / Increased Costs	
Reductions / Decreased Costs	
Net Change	

ACTIVITY 2: COMPLETE BUDGET

Fictional Farm Budget

Period: _____

INCOME	AMOUNT
Total Income	

EXPENSES	AMOUNT
Total Expenses	

Net Return / Profit	

ACTIVITY 3: COST ANALYSIS

1. Which budget gives more detail?

   _____

2. What is the purpose of a partial budget?

   _____

3. When is a complete budget useful?

   _____

4. State one difference between the two budget types:

   _____

   _____

5. Which budget would you use for a whole farm plan?



FUN FACT!

A good budget helps farmers control spending, plan ahead and make better decisions for profit.

TEXTBOOK REFERENCE

Agricultural Science for Junior Secondary Schools, Book 2

Name: _____

Topic: Propagation of crop

Sub Topic: sexual propagation



PART 1 – SKILL ACTIVITY

Activity Title:
Understanding Sexual Propagation in Plants

Individual / Group Activity:
Group Activity

Number of Students per Group:
4 – 5 students

Time Required:
15 mins

Tools & Equipment:
Worksheet, pen/pencil, ruler, colors

Aspect	Sexual Propagation	Asexual Propagation
Definition	_____	_____
How it is done	_____	_____
Plant parts involved	_____	_____
Examples of local crops	_____	_____
Advantages	_____	_____
Disadvantages	_____	_____

1. EXAMPLES OF LOCAL CROPS

Identify whether the following crops are usually propagated sexually or asexually.

Maize



Method: _____
Reason: _____

Tomato



Method: _____
Reason: _____

Mango



Method: _____
Reason: _____

Sugarcane



Method: _____
Reason: _____

Banana



Method: _____
Reason: _____

Beans



Method: _____
Reason: _____

FUN FACT!



Did you know? A single corn plant can produce hundreds of seeds!

Sexual propagation helps produce many new plants.

TEXTBOOK REFERENCE



Agricultural Science for Secondary Schools
Grade 8
Unit 1: Crop Production
Pages 10 – 15

REMEMBER!

Sexual propagation uses seeds and creates new plants that may have different traits.
It is important for crop variety and improvement.



Key Message: Understanding sexual propagation helps farmers choose the best method to produce healthy plants and increase food production.



Name: _____

Topic: Propagation of Crops

Sub Topic: Sexual Propagation



PART 1 – SKILL ACTIVITY

Activity Title:
Appreciate the importance of seeds in crop production

Individual / Group Activity:
Group Activity

Number of Students per Group:
4 – 5 students

Time Required:
15 mins

Tools & Materials:
- Worksheet
- Pen/Pencil
- Ruler
- Magnifying Glass
- Seed Samples
- Tray

INSTRUCTION:
Students PROVIDE beans seeds sample.



2. DRAW AND LABEL THE PARTS

Draw the dissected seeds below and label all parts.

CORN SEED (Monocot)

BEAN SEED (Dicot)

VIDEO LINK

Watch a short video to learn more about seeds and propagation of crops!

https://youtu.be/SeedtoPlant123

3. PARTS OF THE SEED – FILL IN THE TABLE

Complete the table by naming the parts and stating their functions.

Seed Type	Part	Description / Location	Function
Corn (Monocot)	Seed coat (Pericarp)		
	Endosperm		
	Cotyledon (Scutellum)		
	Plumule		
	Radicle		
Bean (Dicot)	Seed coat (Testa)		
	Cotyledons		
	Plumule		
	Radicle (Rootlet)		

FUN FACT!
A single corn plant can produce hundreds of seeds! Sexual propagation helps produce many new plants.

TEXTBOOK REFERENCE
Agricultural Science for Secondary Schools
Grade 8
Unit 1: Crop Production
Pages 10 – 15

REMEMBER!
Sexual propagation uses seeds and creates new plants that may have different traits. It is important for crop variety and improvement.

VIDEO TIP!
Scan the QR code or use the link above to watch the video.

KEY MESSAGE: Good quality seeds lead to good germination, healthy plants and higher yields.

Name: _____

Topic: Propagation of Crops

Sub Topic: Germination





PART 1 – SKILL ACTIVITY

Individual / Group Activity: Group Activity

Number of Students per Group: 4 – 5 students

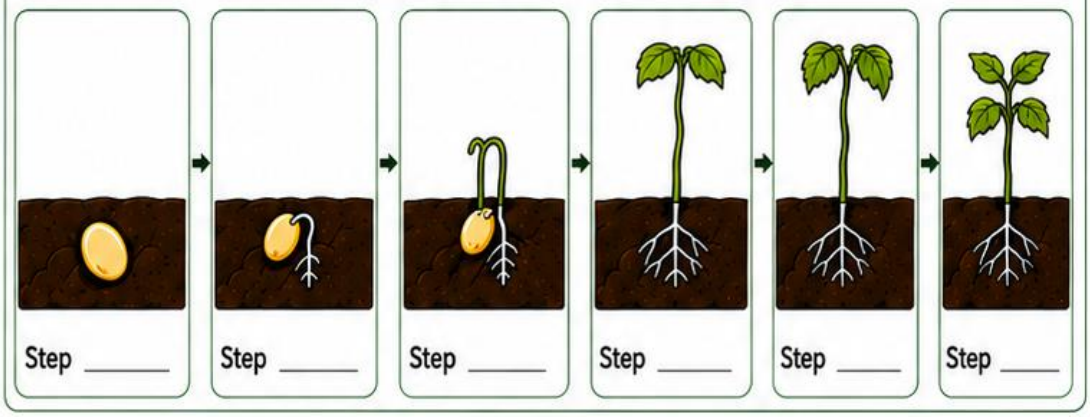
Time Required: 15 mins

Tools & Equipment: Worksheet, pen/pencil, ruler, magnifying glass, seed samples, tray, water, pots

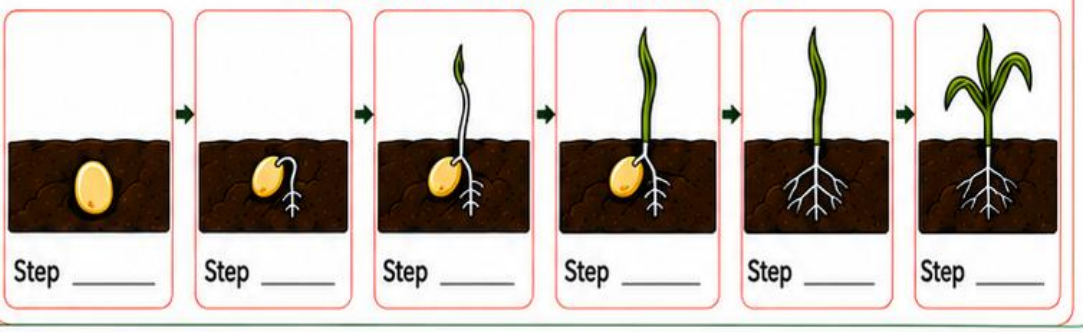
OBSERVATION OF GERMINATION

Observe and draw the sequential steps of epigeal and hypogeal germination.

EPIGEAN GERMINATION (Bean)



HYPOGEAL GERMINATION (Corn)



TYPES OF GERMINATION

1. Epigeal Germination

Cotyledons are lifted above the soil surface as the hypocotyl elongates.



2. Hypogeal Germination

Cotyledons remain below the soil surface as the epicotyl elongates.



VIDEO LINK

Watch a short video to learn more about germination.

https://youtu.be/Germination123



FUN FACT!

A single corn plant can produce hundreds of seeds! Sexual propagation helps produce many new plants.

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools
Grade 8
Unit 1: Crop Production
Pages 10 – 15

REMEMBER!

Sexual propagation uses seeds and creates new plants that may have different traits. It is important for crop variety and improvement.



KEY MESSAGE: Understanding germination helps farmers choose the right crops, improve crop establishment and increase yield.



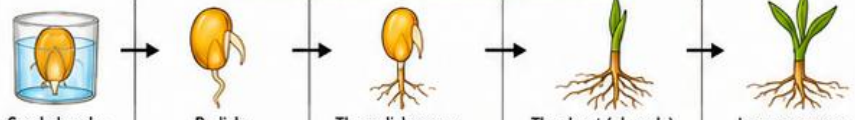
Name: _____ Topic: **Propagation of Crops** Sub-topic: **Germination**

Seed Germination

Germination is the process by which a seed begins to grow into a new plant. Students will observe monocot and dicot seeds, draw and label the sequential steps of germination, and write a scientific report on their findings.



MONOCOT GERMINATION (MAIZE)



DICOT GERMINATION (BEAN)



PART 1 – SKILL ACTIVITY

Activity: Investigate germination in monocot and dicot seeds.
Objective: Students will understand the germination process and identify differences between monocot and dicot germination.

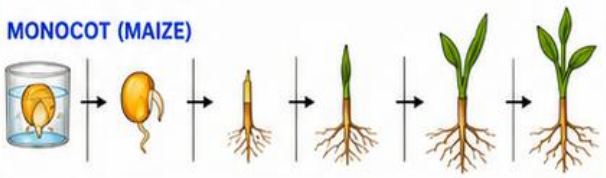
TOOLS & EQUIPMENT	Monocot seeds (e.g. maize), dicot seeds (e.g. bean), petri dishes or plastic cups, moist cotton wool or paper towel, water, ruler, labels and marker, notebook, pencil, gloves.
TIME REQUIRED	20 minutes
NUMBER OF STUDENTS PER GROUP	4–5 students

ACTIVITIES

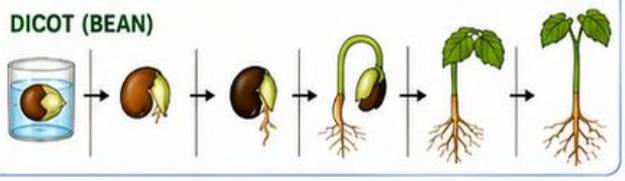
DRAW AND LABEL

Draw and label the sequential steps of monocot (maize) and dicot (bean) germination.

MONOCOT (MAIZE)



DICOT (BEAN)



OBSERVE & RECORD

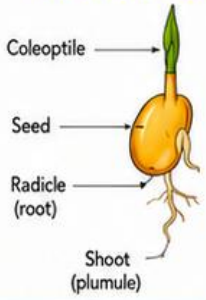
Observe the seeds daily and record visible changes in a table.

Day	Monocot (Maize)	Dicot (Bean)	Changes Observed
1			
2			
3			
4			
5			
6			
7			

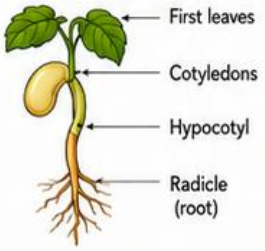
COMPARE MONOCOT & DICOT

Identify and compare the parts and germination pattern of a monocot seed and a dicot seed.

MONOCOT (MAIZE)



DICOT (BEAN)



VIDEO LINK:
https://youtu.be/8mQG8-2KXtI

FUN FACT!

Some seeds can remain dormant for a long time and still germinate when conditions are right.

TEXTBOOK REFERENCE

Caribbean Agricultural Science – Forms 1–3.
Chapter: Propagation of Crops – Germination.

Name: _____

Topic: Propagation of Crops

Sub Topic: Germination

PROPAGATION OF CROPS

GERMINATION



PART 1 – SKILL ACTIVITY

Time Required:	15 mins
Tools & Materials:	Bean seeds (used), seed sample, trays or pots, potting mix, water, labels, notebook, pen, magnifying glass.
Number of Students per Group:	3 – 5 students

Appreciate the importance of conducting a viability test.

THRESHOLD: Above 80% is considered good viability.

VIDEO LINK

Watch this short video on germination.
https://youtu.be/f9a8KJ2Qk8

1. RECORD YOUR RESULTS

Students **PROVIDE** bean seeds sample.

Total number of seeds planted (N) = _____

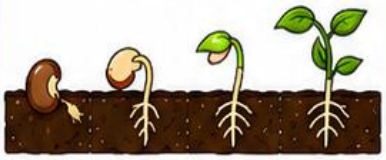
Crop: _____

Date planted: _____

DAY	DATE	NUMBER OF SEEDS GERMINATED TODAY	CUMULATIVE NUMBER OF SEEDS GERMINATED	OBSERVATIONS (what you see)
1				
2				
3				
4				
5				
6				
7				

2. GERMINATION CHECK WINDOW

Check daily for sprouting.



Draw or describe what you observe.

3. CALCULATE AND INTERPRET YOUR RESULTS

Use the formula above to calculate your germination percentage.

My germination percentage = _____ %

Interpretation (tick one):

- ☐ Above 80% – Good viability (acceptable)
- ☐ 60% – 80% – Moderate viability (may be acceptable with caution)
- ☐ Below 60% – Poor viability (not recommended for planting)

FUN FACT!

A single corn plant can produce hundreds of seeds! Sexual propagation helps produce many new plants.

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools
Grade 8
Unit 1: Crop Production
Pages 10 – 15



Name: _____

Topic: Propagation of Crops

Sub Topic: Plant Nursery, Seed Box & Seed Bed

PROPAGATION OF CROPS

PLANT NURSERY, SEED BOX & SEED BED



PART 1 – SKILL ACTIVITY

Individual / Group Activity: Group Activity

Number of Students per Group: 4 – 5 students

Time Required: 15 mins

Tools & Materials:
- Hoe
- Rake
- Spade
- Manure
- Potted soil
- Trowel
- Watering can

VIDEO LINK
https://youtu.be/agri-nursery123



1. STEPS IN PREPARING A SEED BED

Arrange the pictures in the correct order (1–6) by writing the numbers in the circles.



Clear the area of weeds, stones and debris.	Loosen the soil to a fine texture.	Make the bed the desired size and shape.	Add organic matter or compost and mix well.	Water the bed thoroughly.	Level and firm the bed.

2. PRACTICAL ACTIVITY – LET'S PREPARE A SEED BED!

Work in groups to prepare a seed bed using the steps above.
Follow the steps carefully and make your bed neat and ready for sowing.



Clear → Loosen → Shape the bed → Add & Mix → Water → Level & Firm

TIP: A well-prepared seed bed helps seeds germinate well and grow into healthy, strong plants.





FUN FACT!

Healthy seedlings from a well-managed nursery can grow into strong plants and give higher yields!

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools
Grade 8
Unit 1: Crop Production
Pages 10 – 15



REMEMBER!

A good start in the nursery leads to a successful harvest! Care, patience, and good management make the difference.



Name: _____

Topic: Propagation of Crops

Sub Topic: Plant Nursery, Seed Box & Seed Bed

PROPAGATION OF CROPS

PLANT NURSERY, SEED BOX & SEED BED



PART 1 – SKILL ACTIVITY

Individual / Group Activity:
Group Activity

Number of Students per Group:
4 – 5 students

Time Required:
15 mins

TOOLS & MATERIALS:

- Hoe
- Rake
- Spade
- Manure
- Potted soil
- Trowel
- Water can



2. FIELD TRIP OBSERVATION

During your visit to a plant nursery, observe and complete the table.

Aspect to Observe	My Observations / Notes
Location of the nursery	
Types of crops/seedlings being produced	
Structures and facilities (shade house, benches, trays, irrigation system, etc.)	
Materials and tools used	
Seedling management (watering, weeding, pest control, fertilizing, etc.)	
Health and appearance of seedlings	
What I learned that was most interesting	

VIDEO LINK

Watch a short video to learn more about plant nurseries and seed beds.

https://youtu.be/PlantNurserySeedBed123



FUN FACT!

Healthy seedlings from a well-managed nursery can grow into strong plants and give higher yields!

TEXTBOOK REFERENCE

Agricultural Science for Secondary Schools
Grade 8
Unit 1: Crop Production
Pages 10 – 15



REMEMBER!

A good start in the nursery leads to a successful harvest! Care, patience, and good management make the difference.



KEY MESSAGE: A well-managed nursery and seed bed produce healthy seedlings, which are the foundation for a productive and successful crop.



Name: _____ Topic: Propagation of Crops Date: _____

PROPAGATION OF CROPS



ASEXUAL REPRODUCTION

– BUDDING & GRAFTING –



Appreciate the importance of asexual propagation in sustainable gardening and producing plants with identical characteristics.

1 PART 1 – SKILL ACTIVITY

TIME REQUIRED
15 mins

WORK MODE
Individual / Pair

TASK
Identify and label the tools used in budding and grafting and state one use of each.

TOOL / EQUIPMENT	PICTURE	USE (ONE FUNCTION)
Sharp budding/grafting knife		
Pruning shears		
Grafting tape / Polyethylene strips		
Grafting wax		
Clean cloth		
Marker / Labelling tag		

ACTIVITIES

1 GARDEN VISIT (PRACTICAL)

Visit the school garden to observe budding and grafting demonstrated by NARI staff.



VIDEO LINK

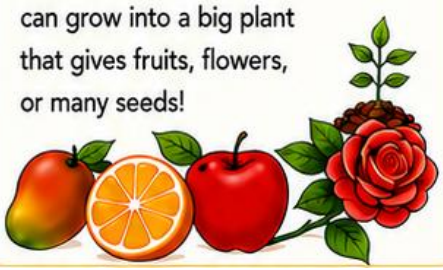
Watch a short video to learn more about budding and grafting.

https://youtu.be/BuddingGrafting123



FUN FACT!

A single bud is tiny, but it can grow into a big plant that gives fruits, flowers, or many seeds!



REMEMBER

- ☑ Use sharp and clean tools.
- ☑ Handle plants gently.
- ☑ Keep the bud shield moist.
- ☑ Check the bud regularly.
- ☑ Patience leads to success!

Care Today, Harvest Tomorrow!

3 TEXTBOOK REFERENCE

Reference: Science Textbook – Class 9 (Secondary Level)

Chapter: Improvement in Food Resources

Section: Asexual Reproduction in Plants

Pages: 112 – 118

(Refer to the chapter for detailed information on budding and grafting.)

Name: _____ Topic: **Propagation of Crops**

Sub-topic: **CUTTINGS & LAYERING**



Asexual Propagation

Cuttings and layering are simple, effective and widely used methods of propagating plants.



Watch Video: Cuttings and Layering in Plants
https://www.youtube.com/watch?v=Y8Qx4u1KJp0

PART 1 – SKILL ACTIVITY

Activity: Propagate plants using cuttings and layering.

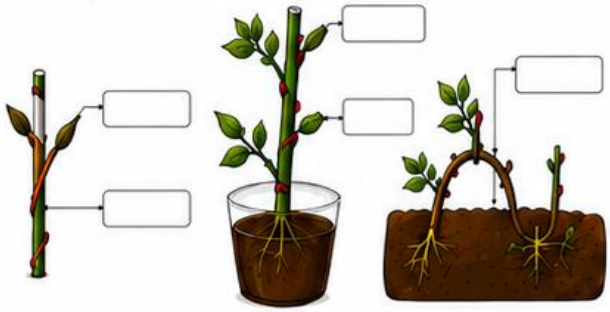
Objective: Students will be able to successfully propagate plants using cuttings and layering.

TOOLS & EQUIPMENT	Secateurs or sharp knife, pots, potting mix, rooting hormone (if available), watering can, plastic bag or cover.
TIME REQUIRED	25 minutes
NUMBER OF STUDENTS PER GROUP	3–4 students

ACTIVITIES

1 LABEL THE DIAGRAM

Label the parts of a cutting and a layered stem.



2 OBSERVE & RECORD

Make a table to record your observations for both cuttings and layering.

Method Used	Date Started	Changes Observed	Date Roots Formed	Success (Yes/No)
Cuttings				
Ground Layering				
Air Layering				

3 DRAW & COMPARE

Draw and compare cuttings, ground layering and air layering.

Cuttings	Ground Layering	Air Layering

TEXTBOOK REFERENCE

Reference: Science Textbook – Class 9 (Secondary Level)
Chapter: Improvement in Food Resources
Section: Asexual Reproduction in Plants
Pages: 112 – 118
(Refer to the chapter for detailed information on cuttings and layering.)



FUN FACT:
The rubber plant (Ficus elastica) can be grown from a single cutting!



Name: _____

Topic: Propagation of Crops

Sub-Topic: Types of Reproduction in Plants



FUN FACT!

Some plants like bananas and sugarcane are grown without seeds! They use asexual reproduction and still produce new plants.



PART 1: PRACTICAL SKILL ACTIVITY

Time Required: 20 mins

Number of Persons per Group: 4–5

Activity: Reproduction Sort & Explain

Examine the pictures provided. Identify whether each example shows sexual reproduction or asexual reproduction. Sort them in the table below and give a reason for your choice.

TOOLS & MATERIALS

- Plant picture cards (provided)
- Chart paper or poster board
- Markers / coloured pencils
- Scissors and glue
- Magnifying glass (optional)
- Notebook and pencil



VIDEO LINK:
https://www.youtube.com/watch?v=5zv1Y9Q7dQ0

EXAMPLES OF PLANT REPRODUCTION

1. Flowering plant (Hibiscus)



2. Bean plant (from seed)



3. Potato (tuber)



4. Onion (bulb)



5. Strawberry (runner)



6. Bryophyllum (leaf buds)



7. Sugarcane (stem cutting)



SEXUAL REPRODUCTION (Involves seeds)	
Example Number	Reason
1.	
2.	
3.	

ASEXUAL REPRODUCTION (No seeds involved)	
Example Number	Reason
1.	
2.	
3.	
4.	

QUESTIONS / ACTIVITIES

1. Define sexual reproduction in plants.
   _____
   _____
2. Define asexual reproduction in plants.
   _____
   _____
3. Give two advantages of each type of reproduction.
   - Sexual reproduction: _____
   - Asexual reproduction: _____
4. Why is it important for farmers to understand both types of reproduction?
   _____



CHALLENGE ACTIVITY

Choose one plant that reproduces asexually. Draw the process (step-by-step) and label each stage.



REMEMBER!

- Sexual reproduction uses flowers and seeds.
- Asexual reproduction uses parts of the plant like stems, leaves, roots, or bulbs.
- Both methods help plants survive and multiply.



TEXTBOOK REFERENCE

Integrated Science for Jamaica Grade 7 (Student's Book)
Unit 3: Living Things – Plants
Pages 54–60



VIDEO LINK

Scan the QR code or click the link to watch a short video on types of plant reproduction.

Name: _____ | Topic: Manures & Soil Fertility | Sub-Topic: Organic Manures

MANURES & SOIL FERTILITY

ORGANIC MANURES

Develop an appreciation for the use of manure in crop production.



FUN FACT!

Earthworms can eat half their body weight in organic matter every day and turn it into nutrient-rich vermicompost!



1. OBSERVATION ACTIVITY — observe texture, smell, colour, and moisture of different organic manures; demonstrate correct manure application techniques.

Observe the following manures and fill in your observations.

FARMYARD MANURE (FYM)	POULTRY MANURE	VERMICOMPOST	GREEN MANURE	LEAF LITTER
				
Texture: _____	Texture: _____	Texture: _____	Texture: _____	Texture: _____
Smell: _____	Smell: _____	Smell: _____	Smell: _____	Smell: _____
Colour: _____	Colour: _____	Colour: _____	Colour: _____	Colour: _____
Moisture: _____	Moisture: _____	Moisture: _____	Moisture: _____	Moisture: _____

TEXTBOOK REFERENCE

Integrated Science for Jamaica Grade 7 (Student's Book)
Unit 4: Soils and Agriculture
Pages 74–78



PART 1: SKILL ACTIVITY

Time Required: 15 Mins

Activity: Observation Relay

In groups, examine at least two organic manure samples provided by the teacher.
Observe texture, smell, colour and moisture.
Fill in the observation table and share one interesting thing you noticed.

Number of Students Per Group: 4-5 students

Video Link: **https://youtu.be/kdnJTgSwXv8**
Soil Fertility I: Organic Manures

TOOLS & EQUIPMENT

- Hand lens
- Gloves
- Hand trowel
- Bucket
- Worksheet, pen/pencil, ruler
- Watering can
- Camera (optional)

MOISTURE TEST STEPS

1. Wear gloves.
2. Take a small sample.
3. Squeeze it gently in your palm.
4. Check the result:
   Wet: water drips.
   Moderate: forms ball.
   Dry: crumbles apart.
5. Record it in the table.

Dry / Moderate / Wet

2. RECORD YOUR OBSERVATIONS

Fill in the table based on the manure samples observed.

Type of Manure	Texture (Soft/Coarse)	Smell (Strong/Mild)	Colour	Moisture (Dry/Moderate/Wet)
Farmyard manure (FYM)				
Poultry manure				
Vermicompost				
Green manure				
Leaf litter				

Organic manures improve soil structure, increase water holding capacity and add nutrients for healthy plant growth.

Name: _____

Topic: Manure & Soil Fertility

Sub-Topic: Inorganic Manure

MANURE & SOIL FERTILITY

INORGANIC MANURES (FERTILISERS)



FUN FACT!

Earthworms can eat half their body weight in organic matter every day and turn it into nutrient-rich vermicompost!



THE FOUR MAIN INORGANIC FERTILISERS

UREA	DAP	MOP	NPK
(46% N)	(18–46–0)	(0–0–60)	(15–15–15)
Nitrogenous Fertiliser	Phosphatic Fertiliser	Potassic Fertiliser	Compound Fertiliser

PART 1: SKILL ACTIVITY

Time Required: 15 Mins

Number of Persons per Group: 4–5

Activity: Observation Relay

In groups, observe the four types of inorganic fertilisers shown above.

Fill in the table with your observations and share one interesting thing you noticed.

Type of Fertiliser	Appearance (Colour & Form)	Smell	Texture	What I Noticed
Urea (46% N)				
DAP (18–46–0)				
MOP (0–0–60)				
NPK (15–15–15)				

TOOLS & EQUIPMENT

- Hand lens
- Gloves
- Hand trowel
- Watering can
- Notebook and pen/pencil
- Ruler
- Label stickers
- Digital camera (optional)
- Measuring cup (optional)

REMEMBER!

Balanced and responsible use of fertilisers leads to healthy plants, higher yields and a better environment.

2. MINI GROUP INVESTIGATION

Research different types of inorganic fertilisers and complete the table.

Type of Fertiliser	Common Examples	Main Nutrient Supplied	Role in Plant Growth	Source / Form	Precautions in Use
Nitrogenous Fertilisers					
Phosphatic Fertilisers					
Potassic Fertilisers					
Compound Fertilisers					

TEXTBOOK REFERENCE

Integrated Science for Jamaica Grade 7 (Student's Book)

Unit 4: Soils and Agriculture

Pages 74–78

VIDEO LINK

Watch: Types and Uses of Inorganic Fertilisers

Video Link: https://youtu.be/fertiliser-lesson

Name: _____ Topic: **Manures and Soil Fertility**

Sub-topic: **Advantages and Disadvantages of Different Types of Manure**

Different Types of Manure

Manure improves soil fertility, but each type has its own benefits and limitations.



Watch Video: Types of Manure
https://www.youtube.com/watch?v=8jv7K0rW6IM

PART 1 – SKILL ACTIVITY

Activity: Compare the advantages and disadvantages of different types of manure.

Objective: Students will identify common types of manure and explain one advantage and one disadvantage of each.

TOOLS & MATERIALS	manure samples or pictures, gloves, worksheet, marker, chart paper.
TIME REQUIRED	20 minutes
NUMBER OF STUDENTS	3–4 students

ACTIVITIES

1 IDENTIFY THE TYPES

Study the examples of compost, poultry manure, farmyard manure and green manure.
Name each type.



Compost | Poultry Manure | Farmyard Manure | Green Manure

2 ADVANTAGES VS DISADVANTAGES

Complete a comparison table showing one advantage and one disadvantage of each manure type.

Type of Manure	Advantage	Disadvantage
Compost		
Poultry Manure		
Farmyard Manure		
Green Manure		

3 BEST CHOICE FOR THE GARDEN

In groups, decide which manure is best for a school garden and give one reason.

_____

_____

_____

4 DRAW & LABEL

Draw one type of manure and label how it helps plants or soil.

TEXTBOOK REFERENCE

Reference: Agricultural Science Textbook – Class 8 (Secondary Level)
Chapter: Manures and Soil Fertility
Section: Types of Manure
Pages: 56 – 62

Name: _____

Topic: Manure & Soil Fertility

Sub-Topic: Inorganic Manure



FUN FACT!

Plants need 16 essential nutrients to grow well. Inorganic fertilisers supply these nutrients quickly so plants can be strong and productive!



PART 1: PRACTICAL SKILL ACTIVITY

Time Required: 15 Mins

Number of Students per Activity: 4–5

Activity: Observation Relay

Observe the diagram and description of each method. Then, demonstrate it in the school garden and record your observations.

TOOLS & MATERIALS / EQUIPMENT

- Measuring cup
- Hand trowel
- Garden fork
- Watering can
- Fertiliser (Inorganic fertiliser)
- Sprayer (for foliar application)
- Gloves
- Notebook and pencil



VIDEO LINK:
https://www.youtube.com/watch?v=6eYbF9X1k2A

1. BROADCASTING



Fertiliser is spread uniformly over the entire soil surface.

Observation:

_____

_____

_____

2. BAND PLACEMENT



Fertiliser is placed in bands beside and below the seed or plant.

Observation:

_____

_____

_____

3. CIRCULAR PLACEMENT



Fertiliser is placed in a circular pattern around the plant.

Observation:

_____

_____

_____

4. DRILLING (ROW PLACEMENT)



Fertiliser is placed in drilled rows or furrows and covered with soil.

Observation:

_____

_____

_____

5. FOLIAR APPLICATION



Fertiliser solution is sprayed directly on the leaves.

Observation:

_____

_____

_____

6. RECORD YOUR PRACTICAL OBSERVATIONS

Method	What I Did	Type of Crop Used	Rate / Amount Applied	Tools / Equipment Used	Date Applied	Initial Observation (Day 1)	Observation After 1 Week	Observation After 2 Weeks	Conclusion
Broadcasting									
Band Placement									
Circular Placement									
Drilling (Row Placement)									
Foliar Application									

REMEMBER!

- Use the right amount, at the right time, in the right place, and in the right way for the best results.
- Overuse can harm plants, soil, and our environment.



TEXTBOOK REFERENCE

Integrated Science for Jamaica Grade 7 (Student's Book)
Unit 4: Soils and Agriculture
Pages 74–78



VIDEO LINK

Scan the QR code or click the link to watch a short video on fertiliser application methods.

Name: _____

Topic: Manure & Soil Fertility

Sub Topic: Knapsack Sprayer



1. IDENTIFY AND LABEL THE PARTS

Study the picture below and label all the parts of the sprayer.



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
12. _____
13. _____
14. _____

Word Bank

Tank | Pump Handle | Hose | Nozzle | Lance | Pressure Chamber | Strainer Filter | Filler Cap | Shoulder Strap | Trigger/Control Handle | Base | Outlet Valve | Extension Lance | Nozzle Holder

2. MATCHING

Match each part (Column A) with its function (Column B).

Column A (Part)		Column B (Function)
1. Tank	( )	A. Used to carry the sprayer on the back.
2. Pump	( )	B. Maintains pressure for continuous spraying.
3. Hose	( )	C. Holds the spray solution.
4. Lance	( )	D. Directs the spray to the target.
5. Nozzle	( )	E. Creates pressure to force liquid through the nozzle.
6. Strainer Filter	( )	F. Breaks the liquid into fine droplets.
7. Pressure Chamber	( )	G. Carries liquid from tank to the lance.
8. Shoulder Strap	( )	H. Prevents dirt from blocking the nozzle.

PART 1 – PRACTICAL SKILL ACTIVITY

Activity: Proper Use of Knapsack Sprayer

Time Required: 20 Minutes

Number of Persons per Activity: 4–5

In small groups, assemble the knapsack sprayer, check all parts, fill with water, pump and spray water on the target area using the correct steps.

Watch & Learn: How to Use a Knapsack Sprayer Safely and Effectively

https://www.youtube.com/watch?v=O9c_X0fh2T0

TOOLS & EQUIPMENT

- Knapsack sprayer
- Measuring cup
- Clean water
- Fertiliser or solution (for practice)
- Funnel and strainer cloth
- Gloves
- Notebook and pencil



FUN FACT!

A knapsack sprayer can cover up to 0.5 hectare of crops in one hour, helping farmers save time and reduce waste of fertiliser or chemicals!

TEXTBOOK REFERENCE: Integrated Science for Jamaica Grade 7 (Student's Book) – Unit 4: Soils and Agriculture – Pages 92–95

WATCH & LEARN VIDEO:
Knapsack Sprayer – Parts, Use & Maintenance
https://www.youtube.com/watch?v=4LxYQb5n9kM

Name: _____

Topic: Farm Equipment & Tools

Sub Topic: Farm Tractor

FARM EQUIPMENT & TOOLS

FARM TRACTOR



ACTIVITIES OVERVIEW

Learn about the parts, operation, safety, and maintenance of a farm tractor; write a report; draw and label tractor parts.



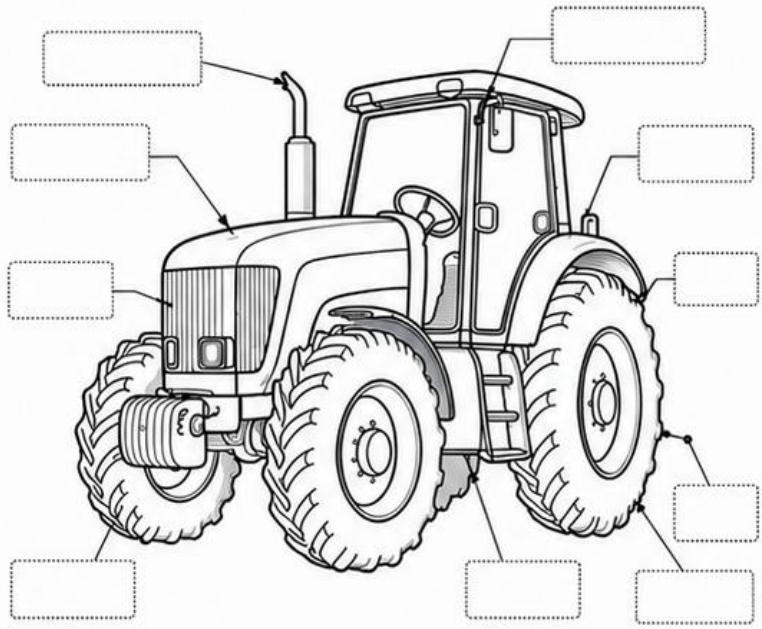


PART 1 – SKILL ACTIVITY

Activity Title	Tractor Parts Identification and Functions
Activity	Group Activity
Number of Students per Group	4 – 5
Time Required	20 Minutes
Tools & Materials	• Tractor diagram worksheet • Pencils / coloured pencils • Information cards (tractor parts and functions)
Task	Match each tractor part with its function and label the parts on the diagram. Discuss how each part helps the tractor to work efficiently.

2. DRAW AND LABEL TRACTOR PARTS

Draw the farm tractor below and label the main parts.



PARTS TO LABEL (Use these or add more if you see them):

- Exhaust pipe
- Air cleaner
- Engine hood
- Headlight
- Front wheel
- Rear wheel
- Step
- Fuel tank
- Cabin / Seat
- Steering wheel
- Rear fender
- Three-point hitch
- Drawbar
- Hydraulic system

3. TRACTOR PARTS AND FUNCTIONS

Fill in the table below.

Tractor Part	Function (What it does)
Engine	
Steering wheel	
Wheels (Front)	
Wheels (Rear)	
Hydraulic system	
Three-point hitch	
PTO (Power Take-Off)	
Brakes	
Seat	
Exhaust pipe	



FUN FACT

The first modern tractor was invented in the early 1900s! Today, tractors make farming faster, easier, and more efficient.

REMEMBER

A well-maintained tractor lasts longer, works better, and keeps the farmer safe. Always follow safety rules and check the tractor before use.

VIDEO LINK

Watch: Farm Tractor Parts, Operation and Safety

Video Link: https://youtu.be/farm-tractor-lesson

TEXTBOOK REFERENCE

Ministry of Education. (2017). *Agricultural Science for Secondary Schools: Student's Textbook – Grade 8.* Guyana: Ministry of Education.

Name: _____

Topic: Farm Equipment & Tools

Sub Topic: Tractor Attachments



FARM EQUIPMENT & TOOLS

TRACTOR ATTACHMENTS



1. PART 1 – PRACTICAL ACTIVITY

Activity Title	Identify and Explore Tractor Attachments
Activity	Group Activity
Number of Students per Group	4 – 5
Time Required	20 Minutes
Tools & Equipment	• Tractor attachments pictures • Observation worksheet • Pencils / coloured pencils • Chart paper • Glue and scissors
Task	Observe the tractor attachments during the field visit, complete the table, then choose one attachment to create a model and prepare a short oral report.

2. FIELD VISIT: OBSERVE AND RECORD

Observe the tractor attachments below. Complete the table.

Attachment	Purpose / Function	Used For (Crops / Land Conditions)	How It Works (Brief)	Safety Precautions / Notes
Mouldboard Plough 				
Disc Plough 				
Harrow 				
Rotavator 				
Sprayer 				
Fertiliser Spreader 				

3. ORAL REPORT: PRESENT YOUR ATTACHMENT

Prepare and deliver a short oral report (2–3 minutes) on your chosen attachment. Use the checklist below to guide you.

Checklist for Oral Report

- ☐ Name of the attachment
- ☐ Its parts and how it works
- ☐ Main function and benefits
- ☐ Where and when it is used
- ☐ Safety precautions during use
- ☐ How to maintain it
- ☐ Conclusion / Recommendation



FUN FACT

Did you know?

The plough is one of the oldest tractor attachments! It was first used thousands of years ago to break up the soil before planting crops.



TEXTBOOK REFERENCE

Ministry of Education. (2017). *Agricultural Science for Secondary Schools: Student's Textbook – Grade 8.* Guyana: Ministry of Education.



REMEMBER

Tractor attachments make farm work easier, faster, and more efficient. Always use the right attachment for the right job and follow safety rules to protect yourself and others.

VIDEO LINK

Watch: Tractor Attachments and Their Uses

Video Link: https://youtu.be/tractor-attachments-lesson

GRADE 8

AGRICULTURAL SCIENCE SKILLWORK BOOK

Building Knowledge. Developing Skills. Growing Guyana.



CO-OPERATIVE REPUBLIC OF GUYANA

MINISTRY OF EDUCATION

GLOSSARY

Agribusiness – The business side of agriculture, including producing, processing, marketing, and selling agricultural products.

Compost – Decayed organic materials used to improve soil fertility.

Crop – A plant grown for food, fibre, medicine, or other useful purposes.

Crop Rotation – Growing different crops on the same land in a planned sequence to maintain soil fertility and reduce pests and diseases.

Cultivation – Preparing the soil and growing crops.

Drainage – The removal of excess water from the soil to prevent waterlogging.

Fertiliser – A natural or manufactured substance added to the soil to supply nutrients for plant growth.

Harvesting – Collecting mature crops from the field.

Herbicide – A chemical used to control or kill weeds.

Humus – The dark organic matter formed from decomposed plants and animals in the soil.

Integrated Pest Management (IPM) – A combination of methods used to manage pests while reducing harm to people and the environment.

Irrigation – The artificial application of water to crops.

Land Preparation – The process of clearing, tilling, and preparing land before planting.

Limestone – A material applied to acidic soils to increase soil pH.

Manure – Animal waste or organic material used to enrich the soil.

Marketing – Promoting and selling agricultural products to consumers.

Mulch – Material placed on the soil surface to conserve moisture, suppress weeds, and improve soil conditions.

Nursery – A place where seedlings are raised before transplanting.

Organic Matter – Plant and animal materials that decompose and improve soil fertility.

Pest – Any organism that damages crops or livestock.

Pesticide – A substance used to control pests such as insects, weeds, fungi, or rodents.

Planting Material – Seeds, seedlings, cuttings, suckers, or other materials used to establish crops.

Post-Harvest Handling – Activities such as cleaning, grading, packaging, transporting, and storing crops after harvest.

Pruning – Removing unwanted branches, leaves, or stems to improve plant growth and productivity.

Seed Bed – A prepared area where seeds are sown for germination.

Seedling – A young plant that has recently germinated.

Soil Fertility – The ability of soil to provide nutrients needed for healthy plant growth.

Soil pH – A measure of how acidic or alkaline the soil is.

Topsoil – The upper layer of soil where most plant roots grow.

Transplanting – Moving seedlings from a nursery to their permanent growing site.

Value-Added Product – A product

Waterlogging – A condition where soil contains too much water, limiting oxygen available to plant roots.

Weed – Any unwanted plant

APPENDIX

Video Companion Guide

Grade 8 Agricultural Science Skillwork Book

Selected practical sub-topics with supporting YouTube search links.

Page	Topic / Sub-topic	YouTube Link
5	Land Preparation – Importance of Land Preparation	https://www.youtube.com/results?search_query=Land+Preparation+for+Vegetable+Farming
8	Land Preparation – Land Clearing and Field Layout	https://www.youtube.com/results?search_query=Land+Clearing+and+Field+Layout
9	Land Preparation – Primary and Secondary Tillage	https://www.youtube.com/results?search_query=Primary+and+Secondary+Tillage
10	Land Preparation – Drain Construction	https://www.youtube.com/results?search_query=Farm+Drain+Construction
11	Land Preparation – Farm Tools and Equipment	https://www.youtube.com/results?search_query=Basic+Farm+Tools+and+Their+Uses
12	Land Preparation – Applying Organic Manure	https://www.youtube.com/results?search_query=Applying+Organic+Manure+to+Crops
13	Land Preparation – Applying Agricultural Lime	https://www.youtube.com/results?search_query=Applying+Agricultural+Lime
16	Cabbage – Nursery Establishment	https://www.youtube.com/results?search_query=Cabbage+Nursery+Establishment
17	Cabbage – Transplanting	https://www.youtube.com/results?search_query=Transplanting+Cabbage+Seedlings

Page	Topic / Sub-topic	YouTube Link
	Cabbage Seedlings	
18	Cabbage – Crop Management	https://www.youtube.com/results?search_query=Growing+Cabbage+from+Seed+to+Harvest
19	Cabbage – Common Pests and Diseases	https://www.youtube.com/results?search_query=Common+Cabbage+Pests+and+Diseases
21	Sweet Potato – Planting Sweet Potato Slips	https://www.youtube.com/results?search_query=How+to+Plant+Sweet+Potato+Slips
22	Sweet Potato – Sweet Potato Crop Management	https://www.youtube.com/results?search_query=Growing+Sweet+Potatoes+from+Planting+to+Harvest
23	Sweet Potato – Sweet Potato Pests and Diseases	https://www.youtube.com/results?search_query=Sweet+Potato+Pests+and+Diseases
26	Coconut – Planting Coconut Seedlings	https://www.youtube.com/results?search_query=How+to+Plant+Coconut+Seedlings
27	Coconut – Coconut Crop Management	https://www.youtube.com/results?search_query=Coconut+Cultivation+and+Management
30	Citrus – Planting Citrus Trees	https://www.youtube.com/results?search_query=How+to+Plant+Citrus+Trees
31	Citrus – Citrus Orchard Management	https://www.youtube.com/results?search_query=Citrus+Orchard+Management
32	Citrus – Citrus Pests and Diseases	https://www.youtube.com/results?search_query=Common+Citrus+Pests+and+Diseases

CO-OPERATIVE REPUBLIC OF GUYANA

MINISTRY OF EDUCATION

GRADE 8 AGRICULTURAL SCIENCE

SKILLWORK BOOK

Building Knowledge.
Developing Skills.
Growing Guyana.

ABOUT THIS BOOK

The Grade 8 Agricultural Science Skillwork Book provides engaging activities, investigations and projects that help you build the knowledge and skills needed for modern agriculture. Through hands-on learning, you will explore real-world situations, solve problems, and make informed decisions that contribute to sustainable farming and the development of Guyana.

YOU WILL:

- Develop practical agricultural skills
- Think critically and solve problems
- Work collaboratively and communicate effectively
- Apply knowledge to everyday life
- Explore career opportunities in agriculture





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Hands-on tasks that build real agricultural skills.



INVESTIGATIONS
Explore, observe and discover how things work on the farm.



GROUP TASKS
Collaborate with your peers to complete exciting challenges.



LIFE APPLICATIONS
Apply what you learn to everyday situations and future careers.



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