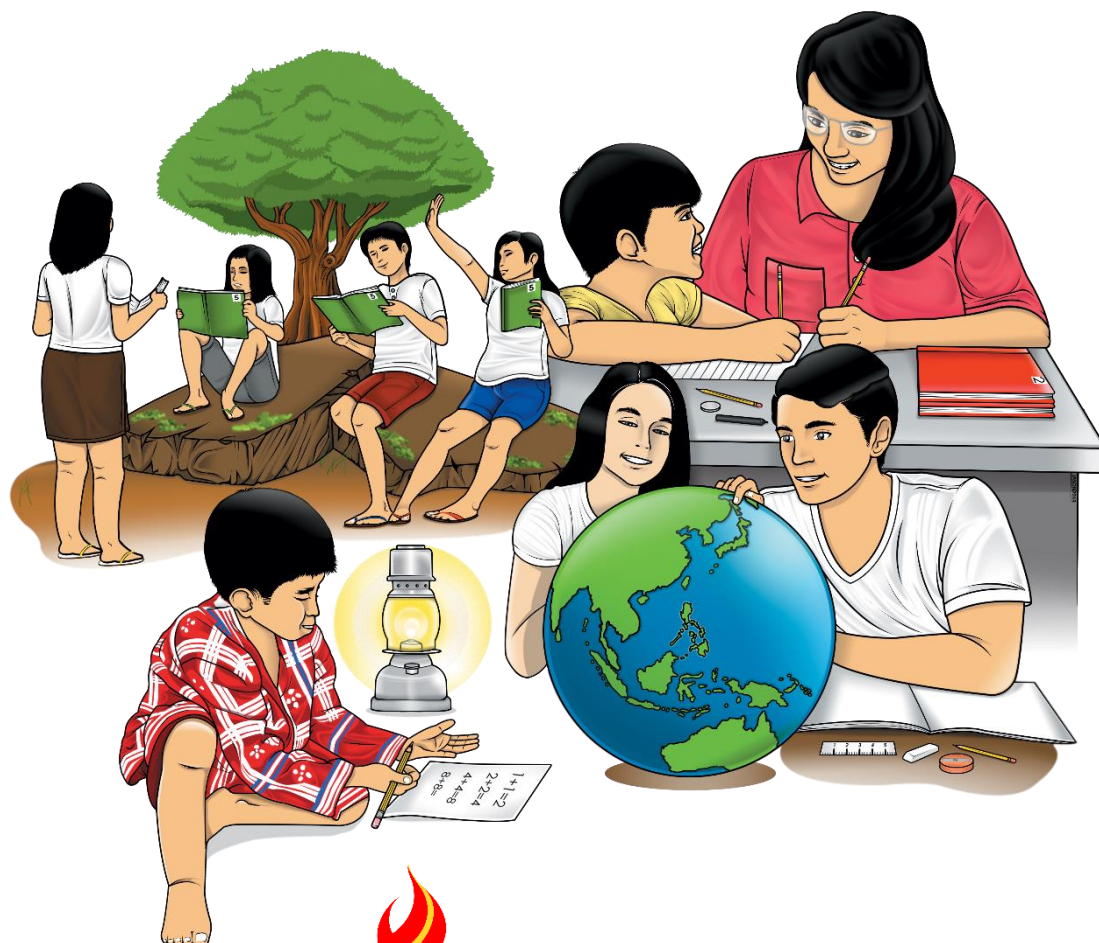


Technology and Livelihood Education

Agri-Fishery Arts

Module 5: Propagating Trees and Fruit-Bearing Trees



Technology and Livelihood Education – Grade 6
Alternative Delivery Mode
Module 5: Propagating Tress and Fruit-bearing Trees
First Edition, 2020

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Technology and Livelihood Education

Agri-Fishery Arts

Module 5: Propagating Trees and Fruit-Bearing Trees

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



What I Need to Know

Successful tree-planting requires some knowledge about trees, what they need and how they grow, and some skill on when and how to plant and take care of them. If we want to be successful in planting trees and fruit-bearing trees you must abreast yourselves with different tools and equipment in order to achieve a bountiful harvest.

This module will cover on how to propagate trees and fruit bearing trees using scientific processes.

After going through this module, you are expected to:

1. identify the appropriate tools and equipment in plant propagation and their uses;
2. demonstrate scientific ways of propagating fruit bearing trees; and
3. observe healthy and safety measures in propagating fruit-bearing trees.



What I Know

As you start this module, you are going to check your previous knowledge regarding the topics by answering the questions herein. Select the correct answer from the box given below. Write your answer on a separate sheet of paper.

Budding	Shovel	Asexual Propagation		Gloves
Bolo	Cutting	Grafting	Seeds	Rake
Sexual Propagation		Seedlings	Spade	Hoe

1. _____ It is the process wherein the scion is united with the rootstock to unite and grow as one plant.
2. _____ A type of propagation which refers to a part that is cut and propagated.
3. _____ It is used for cutting wood, trees, and grass.
4. The most common and easiest way of plant propagation is using _____.
5. _____ is used for smoothening the soil and gathering together loose leaves, hay or straw.
6. _____ It is a method of reproducing, increasing, or multiplying plant species.
7. _____ A tool with a broad or scoop attached to a handle and used to dig, lift, and throw loose matter.
8. The process of transferring the lateral bud taken from the scion to the stock of the same family is called _____.
9. _____ It is made of strong rubber to protect your hands from thorns while working on the garden.
10. _____ is a process where a ring of bark on a branch is removed, then is wrapped with soil in plastic sheets, tying both ends with twine.

Module 5

Propagating Trees and Fruit-Bearing Trees

1



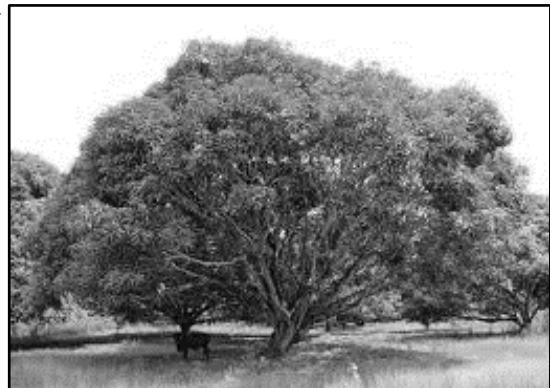
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3



4



¹ Arlene Gardner, Free Royalty, <https://www.wallpaperflare.com/philippines-davao-city-eden-nature-park-tree-plant-forest-wallpaper-eycel>

² USAID Biodiversity & Forestry, Free Royalty, <https://www.flickr.com/photos/usaaid-biodiversity-forestry/>

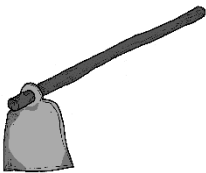
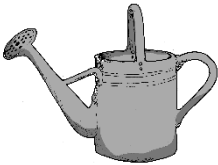



³ Lanzones, Free Royalty, <https://nl.m.wikipedia.org/wiki/>

⁴ Farm of Silveria A. Baton in Danao, Cebu, Free Royalty, <https://commons.wikimedia.org/wiki/>



What's In

Below are some of the plant propagation tools that you learned from your previous grade level. Your task is to connect the correct uses of each tool that is shown in the illustration.

Tools and Equipment	Use
1. 	a. use for taking up small plants
2. 	b. use to cut branches of trees
3. 	c. use to spread and level the soil
4. 	d. use to water the plants
5. 	e. use in digging and breaking the soil

All illustrations were done by Learesa G. Amban



What's New

The Little Plant

(Kate L. Brown)

In the heart of a seed,
Buried deep, so deep,
A dear little plant
Lay fast asleep.

'Wake,' said the sunshine,
'And creep to the light,'
'Wake,' said the voice
Of the raindrops bright.

The little plant heard,
And it rose to see
What the wonderful
Outside world might be.

What can we find in the heart of a seed according to the poem?

What do you think the little plant will become someday?

What are the tools used in planting the seed?

What method did use in planting the seed?

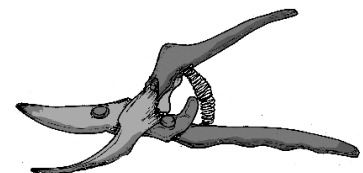
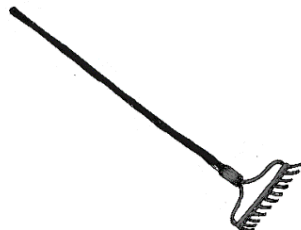
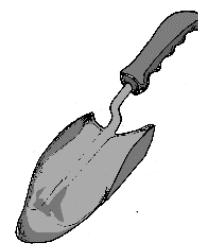
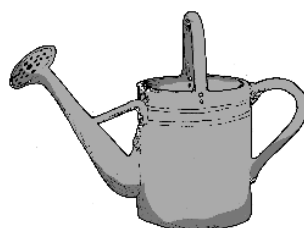
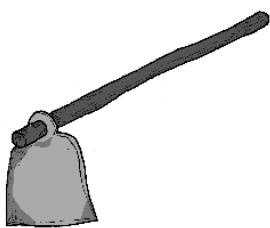


What is It

Modern technology and research have gone a long way, especially in the field of agriculture. There are different agricultural products today that did not exist long ago. We now have seedless grapes, oranges, and watermelons. There are also various plants with leaves and flowers of different colors that come from just one plant. Fruit-bearing trees can bear fruits within a short period. Some can bear fruits all year round. These advancements are made possible due to agricultural technology called plant propagation.

Plant propagation is a method of reproducing, increasing, or multiplying plant species. It is being practiced because of the following reasons:

1. to increase the number of plant species;
2. to produce plant varieties that are resistant to some insect pests and diseases;
3. to evolve new and better varieties of plants suited to different conditions of soil and climate;
4. to accelerate and at the same time lessen the bearing age of plants; and
5. to avert the extinction of some plant species



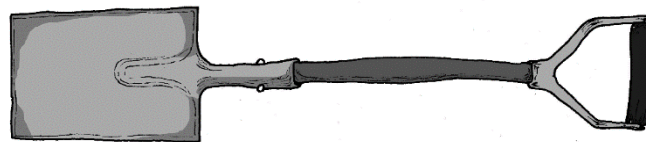
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To learn more about propagating trees and fruit bearing trees we need to understand the following:

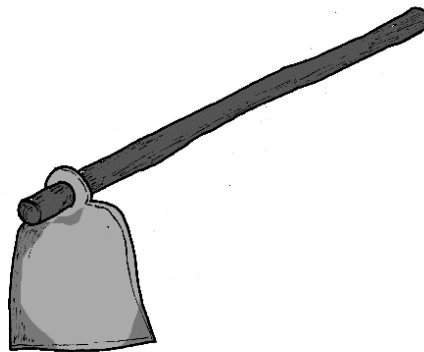
I. Tools and Equipment in Plant Propagation

Tools and equipment are important in the processes of propagating plants especially those fruit trees being grown in the orchard. The use of tools and equipment makes the work become easier and proper procedures in caring trees are executed properly.

- a. **Spade** is used in tight spaces. The square-shaped blade is perfect for digging holes for plants and bushes, especially in established gardens where you don't want to disturb existing plants.



- b. **Hoe** is used in digging and breaking hard and dry soil. It has a thin blade across the end of a long handle.



- c. **Rake** is a long handled tool having a bar at one end with teeth in. It is used for even spreading of soil or leveling the soil.

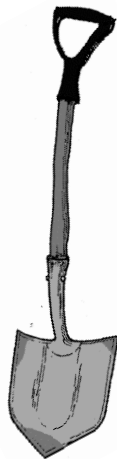


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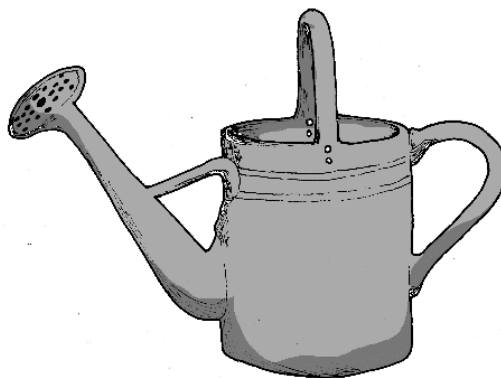
- d. **Bolo** is a tool with a wooden or metal handle in which a long blade is attached. It is used for cutting tall grasses and branches of trees.



- e. **Shovel** is a broad scoop attached to a handle. It is used for removing soil or weeds and transferring the soil from one place to another.

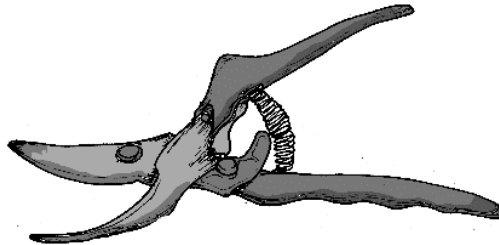


- f. **Water Sprinkler** is a container with small holes on the spout to sprinkle water on the plants.

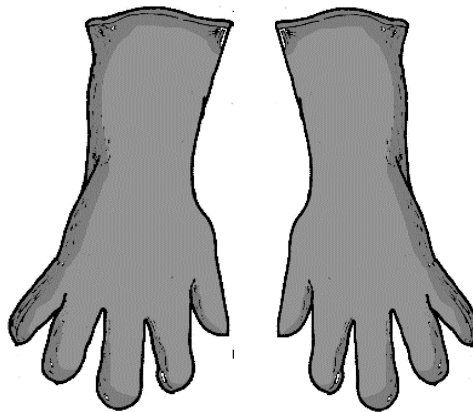


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- g. **Pruning Shears** is used for cutting small branches including the unnecessary branches.



- h. **Garden gloves** are used while working in the garden, made of strong rubber to protect from thorns and withstand punctures.

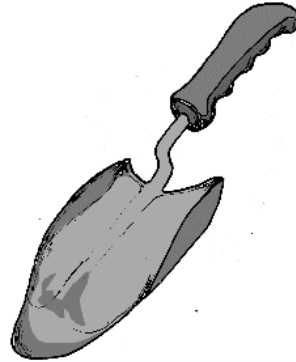


- i. **Spading Fork** is a tool resembling a table fork but much bigger in size. It is used for removing soil or trash.



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- j. **Trowel** is a tool with a curved blade used for loosening the ground and taking up small plants.



- k. **Sprayer** is used for spraying chemicals to eliminate plant insects.



II. Scientific Ways of Propagating Fruit-Bearing Trees

A. Sexual propagation is a propagation by seed or spores. The plants will become fertilized and produce the seed that will grow into a new plant with characteristics of both parent plants. Because of the traits given by the parent plants, sexual propagation offers these advantages:

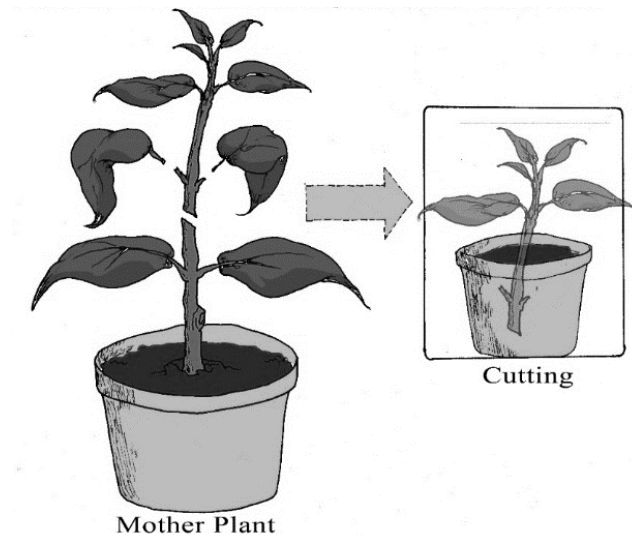
1. the only method when creating new varieties or cultivars;
2. the easiest and cheapest way of growing plants;
3. a way of getting rid of diseases; and
4. some plants are only able to be produced via seed

B. Asexual Propagation is a process of regenerating a new plant by taking a part of another plant to develop. This results to have a new plant that is identical to its parent plant.

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Different types of Asexual Propagation

- a. Cutting.** A part of a single or mother plant is cut to be planted as cutting for purpose of multiply its variety. Example of fruit- bearing tree that can be planted by cutting is Siniguelas.



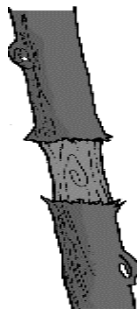
- b. Marcotting or Air layering.** Stimulates the stem or branch of a mother plant to develop roots while still connected to it.

Materials:

Knife or cutter
Plastic (transparent)
Straw
soil or coco husk

Steps in Marcotting:

1. Remove a ring-like layer of soft bark about 2 to 3 inches long.

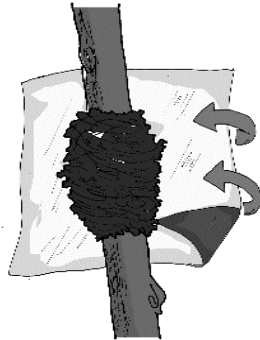


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2. Apply soil or coco husk around the cut surface.



3. Cover securely with a piece of plastic sheet.



4. Tie both ends to prevent drying of the rooting medium. Keep it moist.



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c. Grafting is a plant propagation method that involves inserting a scion into a stock so that they will form a union and grow together.

Materials:

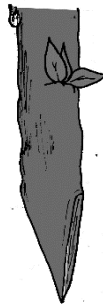
Grafting knife
Pruning Shears
Grafting wax
Stock
Scion

Steps in Grafting

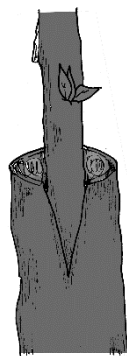
1. The stock is first cut straight and after that a perpendicular cut is made in the center of the stump. For bigger material, a wedge is cut in the top of the stump.



2. The scion is cut in the form of a wedge (for big material, similar to that of the stock).

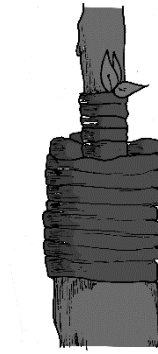


3. The scion is inserted in the cut made in the stock. In case the stock is of bigger diameter, the cambium should fit at one side only.



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4. Seal all exposed surfaces with grafting wax or grafting paint.



- d. Budding** is the process of transferring the lateral bud taken from the scion to the stock of the same family.

Materials:

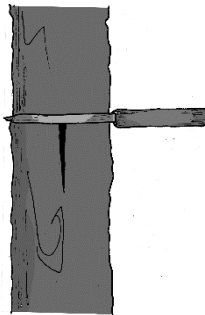
Budding knife

Grafting wax

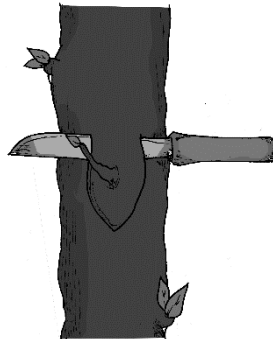
Buddy tape

The steps are the following:

1. On the rootstock, cut vertically about 2.5 cm long. A horizontal cut is made through the bark about one-third the distance around the stock. With a knife blade, lift the corners and carefully loosen the bark.

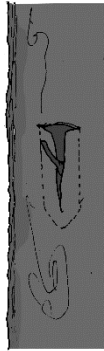


2. Cut a bud from the bud stick which includes a thin piece of attached wood.



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3. Slide the bud under the flaps of the bark on the rootstock until the ends are firmly even. Using buddy tape, tie the bud to the rootstock.



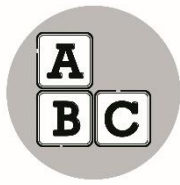
4. Wrap the ends tightly but be sure not to cover the bud with tape.



III. Healthy and Safety Measures in Propagating Fruit-Bearing Trees

1. Wear protective equipment while working to ensure your body protection.
2. Make sure to follow instructions in using tools and equipment.
3. Always check if the tools and equipment are working properly before using them.
4. Do not be distracted try to focus and work properly.
5. Use the right position in working; be sure that you are comfortable in your position.
6. Seek adult's advice if necessary.
7. Take a bath before and after working; make sure that you are fresh and ready to work.

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What's More

Independent Activity 1:

Directions: Hunt the words that are related to plant propagation. Try to describe how they are done.

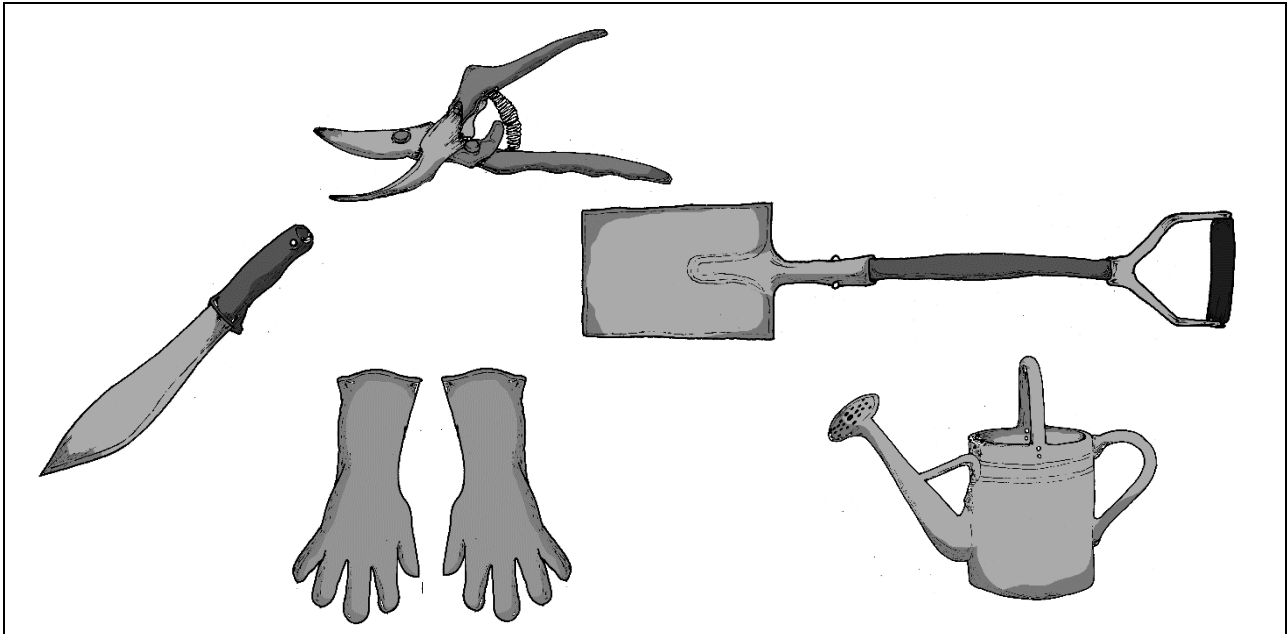
G	O	B	U	D	D	H	N	B	S	W	T
R	H	S	E	T	A	C	V	U	N	I	O
A	X	A	G	V	R	U	X	D	R	N	K
F	T	Q	H	U	Y	T	A	D	E	W	L
T	M	A	R	C	O	T	T	I	N	G	O
I	G	S	J	L	U	I	U	N	U	Y	Y
N	J	W	F	E	H	N	K	G	H	O	L
G	T	G	Q	F	C	G	Y	K	L	E	A
R	S	E	X	U	A	L	M	I	P	L	E

Independent Assessment 1:

1. It is propagation by seed or spores.
2. A process where a ring of bark on a large branch is removed.
3. The process of transferring the bud from the scion to the stock of the same family.
4. A process of inserting a scion into a stock so that they will grow together.
5. Refers to a part of the plant that is cut and propagated.

Independent Activity 2:

Directions: Identify the tools inside the box given their pictures and based on their functions. Write the name of the tool before the number as described by the questions in each item.



Independent Assessment 2:

- _____ 1. It is used to protect our hands from thorns.
- _____ 2. It is used to water the plants.
- _____ 3. It is used to cut big branches of trees.
- _____ 4. It is used for cutting small branches.
- _____ 5. It is used for digging holes for plants and bushes.

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Independent Activity 3:

Directions: Read and understand the paragraph written below and answer the following questions asked.

The grade 6 pupils of Cong. Eliseo P. Limsiaco Sr. Memorial School was assigned to propagate fruit-bearing trees. Some pupils did the marcotting, some pupils were tasked to do budding while others were grafting. Teacher Leah reminded them to always follow the safety measure in propagating trees and fruit-bearing trees. What should they do to avoid accidents while working?

Independent Assessment 3:

Directions: Put a check (✓) before the number if the statement talks about the safety measure that the grade 6 pupils will follow and x if it is not.

- _____ 1. Wear protective equipment while working.
- _____ 2. Make sure not to follow instructions in using tools and equipment.
- _____ 3. Do not take a bath before and after working.
- _____ 4. Take care of tools and equipment to last long and maintain their efficiency.
- _____ 5. Do not be destructed try to focus and work properly.



What I Have Learned

- _____ is a square-shaped blade perfect for digging holes for plants and bushes.
- To cut branches of big trees and other tall fruit-bearing trees we are using the _____.
- In cleaning the garden with falling leaves we use _____ to gather it.
- _____ is used to water the plants in the garden.
- _____ involves taking a part of one parent plant and causing it to regenerate itself into a new plant.
- There are four types of Asexual propagation, They are _____, _____, _____, and _____.
- The process of transferring the lateral bud taken from the scion to the stock of the same family is called _____.
- _____ is a type of propagation which refers to a part of the plant that is cut and propagated.
- Remove a ring-like layer of soft bark about 2 to 3 inches long is one of the steps in performing the _____.
- Wear _____ while working to ensure your body protection.



What I Can Do

Directions: List 10 commonly grown fruit trees in the community and tell what ways of propagation is used.

Name of Fruit Trees	Ways of Propagation



Assessment

Directions: Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.

1. A tool resembling a table fork but much bigger in size. It is used in digging and preparing the soil for the plants.
 - a. bolo
 - b. fork
 - c. shovel
 - d. hoe

2. A tool with a curved blade used for loosening the ground and taking up small plants.
 - a. trowel
 - b. bolo
 - c. hoe
 - d. shovel

3. Used for cutting small branches including the unnecessary branches.
 - a. fork
 - b. hoe
 - c. pruning Shears
 - d. trowel

4. A tool with a wooden or metal handle in which a long blade is attached. It is used for cutting tall grasses and branches of trees.
 - a. bolo
 - b. pruning shears
 - c. trowel
 - d. rake

5. Used while working in the garden, made of strong rubber to protect from thorns and withstand punctures.
 - a. garden gloves
 - b. bolo
 - c. trowel
 - d. sprayer

6. Your teacher asked you to visit your garden and you saw plenty of loose leaves on the ground. What tool or equipment will you use?
 - a. Rake
 - b. Bolo
 - c. Trowel
 - d. sprinkler

7. The following are the steps in marcotting. Which of the following is the correct sequence in performing it?
- I. Remove a ring like layer of soft bark about 2 to 3 inches long.
 - II. Cover securely with a piece of plastic sheet.
 - III. Tie both ends to prevent drying of the rooting medium.
 - IV. Apply soil or coco husk around the cut surface.
- a. IV,III,II,I
 - b. I,IV,II,III
 - c. I,II,III,IV
 - d. IV,III,I,II
8. The process of transferring the lateral bud taken from the scion to the stock of the same family.
- a. grafting
 - b. budding
 - c. marcotting
 - d. cutting
9. A plant propagation method that involves inserting a scion into a stock so that they will form a union and grow together.
- a. budding
 - b. marcotting
 - c. cutting
 - d. grafting
10. Which of the following is not a safety measure in propagating trees and fruit-bearing trees?
- a. Make sure to follow instructions in using tools and equipment.
 - b. Do not be distracted try to focus and work properly.
 - c. Always check if the tools and equipment are working properly before using them
 - d. Do not follow instructions for use of equipment.



Additional Activities

Take pictures of you performing one of the ways in propagating trees and fruit-bearing trees by following the necessary steps. Paste at least 3-5 photos in a bond paper or send it to your teacher's email or social media account.



Answer Key

What I Know 1. Grafting 2. Cutting 3. Bolo 4. Seeds 5. Rake 6. Asexual 7. Shovel 8. Budding 9. Gloves 10. Marcotting	What's More Assessment# 1: 1. SEXUAL 2. MARCOTTING 3. BUDDING 4. GRAFTING 5. CUTTING Assessment # 2 1. Garden gloves 2. Water sprinkler 3. Bolo 4. Pruning Shears 5. Spade Assessment #3 1. / 2. X 3. X 4. / 5. /	Assessment 1. b 2. a 3. c 4. a 5. a 6. a 7. b 8. b 9. d 10. d
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