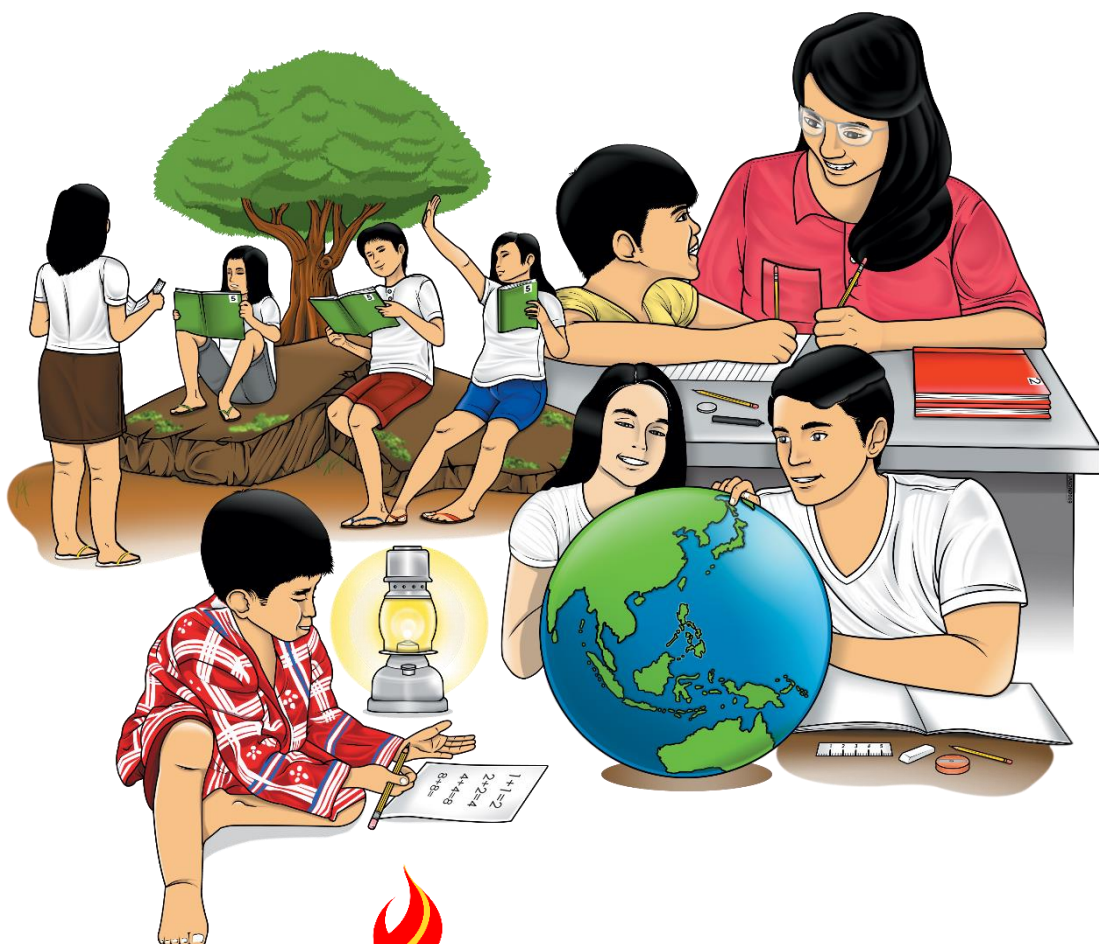


# Science

## Quarter 2 – Module 4:

### “Specialized Structures of Plants”



**Science – Grade 4**  
**Alternative Delivery Mode**  
**Quarter 2 – Module 3 “Body Structures of Animals for Adaptation and Survival”**  
**First Edition, 2020**

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**Development Team of the Module**

<b>Author:</b>	Katherine D. Yarte
<b>Editors:</b>	Noel V. Ibis, Christian M. Espiritu
<b>Reviewer:</b>	Chozara P. Duroy
<b>Illustrator:</b>	Jotham D. Balonzo
<b>Layout Artist:</b>	Jogene Alilly C. San Juan
<b>Management Team:</b>	Gilbert T. Sadsad, Francisco B. Bulalacao Jr., Grace U. Rabelas, Ma. Leilani R. Lorico, Emma T. Soriano, Amy B. Dumail

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**Department of Education – Region V**

Office Address: Regional Center Site, Rawis, Legazpi City 4500  
Telefax: 0917 178 1288  
E-mail Address: region5@deped.gov.ph

**Science**  
**Quarter 2 – Module 4:**  
**“Specialized Structures**  
**of Plants”**

## **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.



## ***What I Need to Know***

Living things cannot survive without plants. Plants give food to all terrestrial organisms, including humans. Plants maintain the balance in the ecosystem. They produce oxygen and absorb carbon dioxide during photosynthesis. Hence, it is vital to learn how plants will grow in a certain environment. Specifically, you should know their specialized structures which they use to adapt to their changing environment and be able identify plants which could grow in a particular habitat.

Series of activities were provided that can help you attain your learning targets. Please be guided by the instructions in each activity. You can also use this module at your own pace.

The lesson will focus on:

- Lesson 1 – Specialized structures of terrestrial and aquatic plants (S4LT-IIe-f-9)

After going through this, you are expected to:

1. identify the specialized structures of terrestrial and aquatic plants; and
2. identify which plant could grow in a particular habitat.

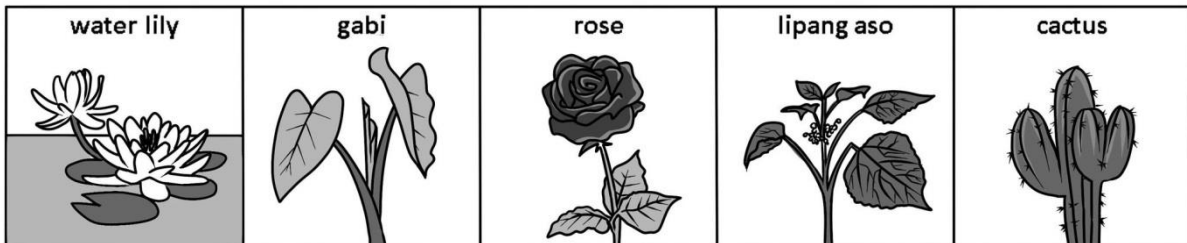


## What I Know

**A. Directions:** Make a list of 10 plants that you see around. Draw at least one of them and describe its structure. Do it in your notebook.

1.	6
2	7
3	8
4	9
5	10

**B. Directions:** Identify the following plants with the specialized structure described in each statement. Choose your answer from the box below. Do it in your notebook.



Illustrated by: Joham D. Balonzo

water lily	gabi	rose
lipang aso	cactus	

- \_\_\_\_\_ 1. It is a kind of plant with thorny stems.
- \_\_\_\_\_ 2. It floats in water because of its thick and buoyant leaves.
- \_\_\_\_\_ 3. It is a kind of plant with waxy leaves.

- \_\_\_\_\_ 4. It has fleshy and thorny stems that grows mostly in the desert.
- \_\_\_\_\_ 5. It has a hairy stem as its protective structure

How did you find the activity? Try to find out below:



11-15



6-10



0-5

**Good Job!**

## **Lesson**

# **1**

## **“Specialized Structures of Terrestrial and Aquatic Plants”**

Will you please look outside your home and use a few minutes to look at the plants around you. In the previous lesson, you learned that animals live and survive in different environments using their adaptive behavior and body parts.

Plants live in different environments. Some plants thrive in water and some survive in a hot desert land. Did you know that without plants, living things will not be possible? Plants play a vital role in all living things. In order to survive, terrestrial and aquatic plants learn to use their specialized structures to adapt to their changing environment.

Knowing unique structures of plants is amazing! It will be much easier growing them in your backyard if you are familiar with their characteristics. Get ready, because in this lesson you will learn some of the special characteristics of plants. Have fun and enjoy the activities provided for you!



## ***What's In***

**Directions:** Read and answer each question. Write the letter of the correct answer in your notebook.

1. What do you call the structure or behavior that helps an organism survive in its environment?  
a. adaptation    b. camouflage    c. mimicry    d. population
2. What protects fishes from diseases and from other animals that live in water?  
a. gills    b. fins    c. scales    d. tail
3. Shrimp and lobsters are covered with outside skeleton or exoskeleton. What covers other animals like clams and mussels?  
a. skin    b. scales    c. shells    d. thorns
4. Why is the animal's body covered with scales, shells and the like?  
a. for decoration    c. for reproduction  
b. for protection    d. for movement
5. Animals have body parts like legs for walking. What part is needed for animals to fly?  
a. tail    b. wings    c. legs    d. antenna
6. Land or terrestrial animals have \_\_\_\_\_ for breathing.  
a. lungs    b. heart    c. gills    d. fins
7. Animals like dog, lion and tiger have sharp-pointed teeth for \_\_\_\_\_.  
a. moving    b. eating    c. protection    d. flying
8. What is a protective coloration in animals which allows them to blend with their surroundings?  
a. mimicry    b. camouflage    c. balance    d. adaptation
9. Other animals imitate the shape, smell, taste, color and even sound of other animals. What do you call this behavior?  
a. protection    b. camouflage    c. adaptation    d. mimicry



10. It refers to the ecological or environmental area that is inhabited by a particular species of animals, plants or organism. It is where animals and plants live.

- a. habitat    b. surroundings    c. environment    d. ecology

***Excellent! You really knew them. Be ready for more!***



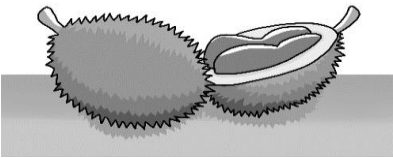
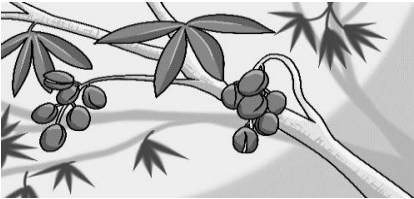
## ***What's New***

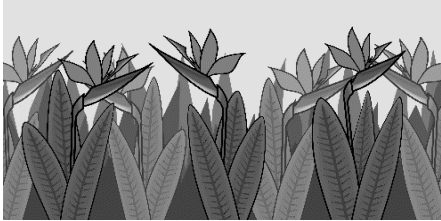
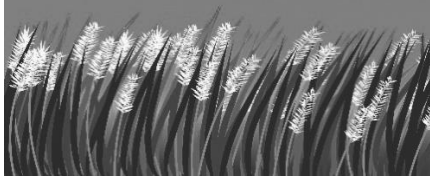

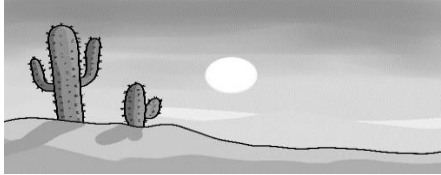

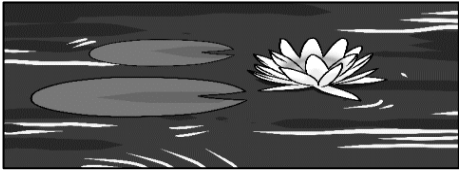
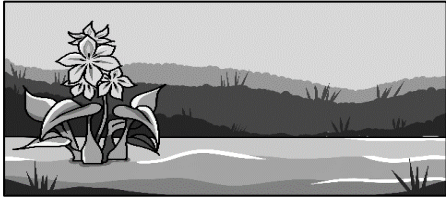
**Note to Parent/Learning Facilitator:** Guide your children in doing this activity.


In your Science notebook answer the guide questions below.

### **Activity 1: “Special Characteristics/Structures of Plants”**

**Directions:** Identify the specialized characteristics/structures of terrestrial and aquatic plants below as to **pungent odor of fruits, unpleasant odor of flowers, thick cuticle, thorny or fleshy stem, fleshy, sharp, or flat leaves and long roots** which made their parts extra special or different from other plants. Write your answers in your notebook.

<b>Plant</b>	<b>Specialized Characteristics/Structures</b>
Marang, Durian Fruit 	1.
Kalumpang Tree 	2.

<p>Birds of Paradise</p> 	<p>3.</p>
<p>Talahib/Cogon</p> 	<p>4.</p>
<p>Pineapple</p> 	<p>5.</p>
<p>Cactus</p> 	<p>6.</p>
<p>Citrus Plant</p> 	<p>7</p>
<p>Water Lily</p> 	<p>8.</p>
<p>Water Hyacinth</p> 	<p>9.</p>

Lotus 	10.

Illustrated by: Joham D. Balonzo

**Guide Questions:**

1. Based on the activity, what are the identified specialized characteristics/structures of the given plants?
2. What is considered them as specialized characteristics/structures?

**Activity 2: “Where do I live?”**

**Directions:** Copy the table and check the proper column whether the plant can grow on terrestrial or in an aquatic habitat. Write your answers in your notebook.

Name of plants	Terrestrial	Aquatic
1. talisay tree		
2. water lily		
3. lotus		
4. narra tree		
5. sampaguita		

**Guide Questions:**

1. Based on the activity, where can plants grow?
2. What are the plants that can grow on land? Water?
3. What are other examples of plants that can grow on land and in water?



## **What is It**

### **Points to Remember:**

Not all plants look the same. They have different flowers, stems, and even root structures that they use in order to adapt to a certain environment.

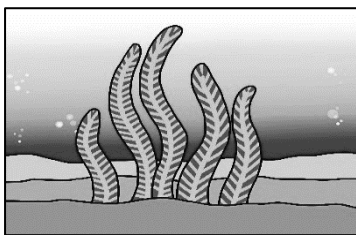
Plants live on different places depending on their characteristics. Plants can grow in water, soil and air. They can be terrestrial or aquatic.

Any plant that grow on land or need to be on dry land to survive is called **Terrestrial plants**. They need nutrients to survive both from the air and the soil. They are planted deeply in the soil. Through its roots, the plants draw minerals and any needed moisture from the soil.

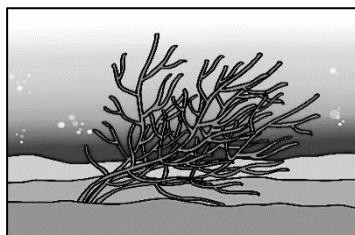
However, **Aquatic plants** are plants that live in water. They can only grow and thrive in a water environment. Some aquatic plants can live out of the water but they need to be placed again in water for survival.

Some aquatic plants are classified as **submersed**. Characteristics of submersed plants include having all or almost all of the plant growing under water.

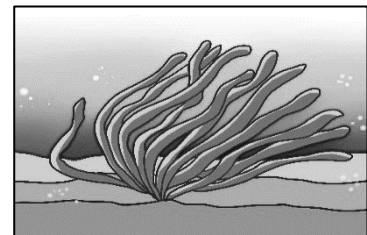
Examples:



Eel Grass



Sago Pondweed



Water Milfoils

Illustrated by: Jotham D. Balonzo

Others are **emersed** aquatic plants like lucky bamboo, golden photos and calla lily. They have stems, leaves or flowers that grow out of the water.

Examples:



Lucky Bamboo



Golden Photos



Calla Lily

Illustrated by: Jotham D. Balonzo

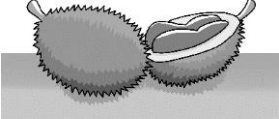

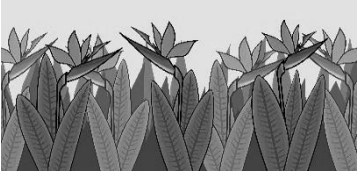
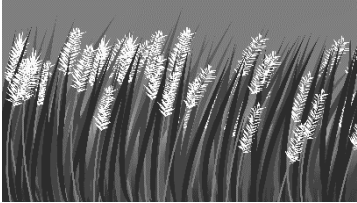

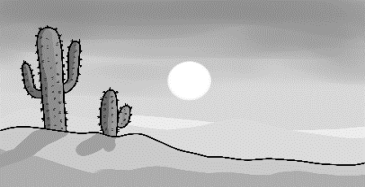

Plants with waxy leaves like “gabi ” help protect themselves from dehydration as a result of too much exposure to sunlight.

Some plants have also developed structure to store water especially in the desert. Cactus is the best example of this. It has fleshy stems to conserve water for a long time. Cactus also have thorny stems as its specialized structure.

Roots of the plants adapt themselves to their habitat. They differ in sizes and in shapes depending on their functions. Examples are radish and potatoes with bulbous roots system.

Thorns and hairs in some plants like *lipang aso* are protective structures.

Aside from the plants mentioned, there are different plants with specialized structures that enables them to survive and adapt to their environment. Some of the plants are the following:

<b>Plant</b>	<b>Specialized Characteristics/Structure</b>
<p>Marang, Durian</p> 	<p>A fruit bearing tree with pungent odor as its specialized characteristic.</p>
<p>Kalumpang Tree</p> 	<p>They are known for unpleasant odor of flowers as its specialized characteristic but still insects attracts to pollinate.</p>
<p>Bird of paradise</p> 	<p>It has a thick cuticle that filter strong light and avoid excessive water loss.</p>
<p>Talahib/cogon</p> 	<p>It has a sharp leaf that might cause you harm.</p>
<p>Pineapple</p> 	<p>It has spines on their leaves.</p>
<p>Cactus</p> 	<p>It has fleshy and thorny stems to conserve water for a long time. It can grow in dry soil with small amount of water.</p>
<p>Citrus plant</p> 	<p>It has a thorny stem and branches, its leaves and fruits have strong smelling oils that have unpleasant taste.</p>

Illustrated by: Jotham D. Balonzo

Aquatic plants have also some of the characteristics that help them survive in water. Some of them have thin cuticles primarily to discourage water loss, thus, most hydrophytes have no need for cuticles.

They have stomata that are open most of the time because water is abundant and therefore there is no need for it to be retained in the plant. This means that guard cells on the stomata are generally inactive.

Some have flat leaves and air sacs for flotation. Flat and buoyant leaves of plants help the plant float in water. The water lily leaves have thick and buoyant leaves while lotus leaves are flat and broad so they tend to float in water surfaces.

Others have smaller roots in which water can diffuse directly into leaves. Some have feathery roots and specialized roots for taking in oxygen.

Long roots of plants help the plant reach the soil underwater. The hyacinths is the best example having long roots so that they can reach the soil under the water.

These specialized structures are important to plants in order to adapt to their environment. We are able to choose and identify plants to grow in a particular habitat because of their characteristics.

Source: Abutay, L., Bonao D., Crucis E., Eslabra J., Gramaje E., Guadamor M., Hernandez A., Ilagan L. Llamera F., Manawatao R., Panganiban H., Rojo J., Tosco RR., and Zape J., Science Grade 4, Teacher's Guide, First Edition 2015. Department of Education (2015), p. 123-138

**Let's check what you have learned so far! Good luck...**





	has fleshy stems to conserve water	cactus
thorny and hairy stem	has thorny and hairy stem as it's protective structure	
	has thick and buoyant leaves for floatation	water lily
has flat and broad leaves	has flat and broad leaves so they tend to float in water	

**Amazing!**



### ***What I Have Learned***

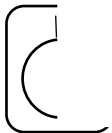
**Directions:** Copy the concept map in your notebook. Be able to write the needed data based from the given legend.



- Identify some parts of the plants with specialized structures.



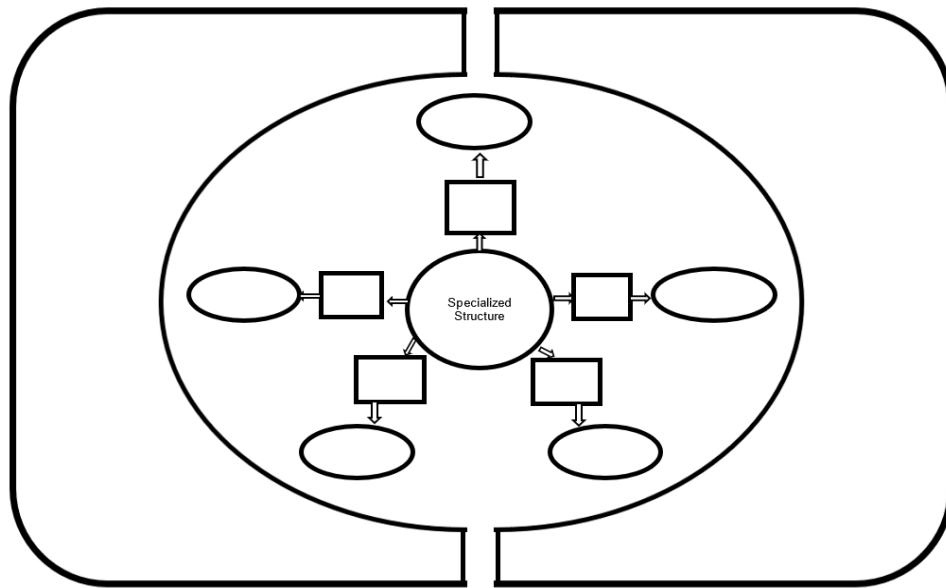
- What made these parts a specialized structure?



- Examples of terrestrial plants.



- Examples of aquatic plants.



## ***What I Can Do***

**Directions:** Read each situation and answer the questions that follow. Do it in your notebook.

1. Mang Mario owns a huge land area. He planted it with different agricultural products such as palay, corn and sugarcane. Every time he visits the field, he never failed to wear long sleeves, pants and boots. Why is it important to wear long sleeves when visiting the field?
  - a. To be an example to other farmer.
  - b. To be more presentable while working in the field.
  - c. To brag his long sleeves and boots to his co-workers.
  - d. To avoid him from getting hurt from the hairy stem of the corn plants.
  
2. Mang Mario also owns a farmland near a pond. You wanted to help him in choosing the kind of plants to grow in his farmland? What will you tell him?
  - a. I will tell him to look for the plants that can grow near the pond.

- b. I will tell him to get some plants that he wanted from my backyard.
- c. I will tell him to look for expensive plants that can grow near the pond.
- d. I will tell him to dump some soil into the pond to grow whatever plants he wanted to grow in his farm.





**Very good! You are now ready for the next activity.**



## Assessment

**Directions:** Choose the letter of the correct answer. Write your answers in your notebook.




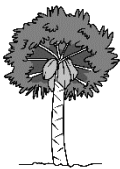
1. What plant grows in water?

a.    

Banana
Coconut Tree
Water Lily
Mango Tree

Illustrated by: Jotham D. Balonzo

2. What plant grows on land?

a.     b.     c.     d.

Illustrated by: Jotham D. Balonzo

3. What kind of plants grow on land in different places.

- a. hydrophytes
- c. macrophytes
- b. aquatic plants
- d. terrestrial plants

4. Which of the following plants has fleshy stems as their specialized structure to conserve water for a long time?

- a. cactus                      b. cogon    c. pineapple    d. strawberry
5. What specialized structure is common to rose and bougainvillea?
- a. both have stinging hairs    c. both have thorny stems  
b. both have sticky leaves    d. both have fibrous fruits
6. Which of the following plants has hair on its stem?
- a. santol    b. mayana    c. lipang aso    d. San Francisco
7. What specialized structure helps succulent plants to respond and survive in a dry soil for a long period of time?
- a. It has fine hair.  
b. It has thick stem.  
c. It has sharp pointed leaves.  
d. It has thick and fleshy stems.
8. Why is it that water hyacinth float in water?
- a. It is light in weight.  
b. Its stem is filled with air.  
c. It has spreading long root stem.  
d. It has light rounded waxy leaves.
9. What specialized structure is present to succulents and cacti?
- a. big and hard stem  
b. long and hairy stem  
c. small and smooth stem  
d. fleshy and thorny stem
10. Which of the following plants is characterized by a sharp leaf that might cause you harm once you touch it?
- a. ginger                      b. kalamansi                      c. rose                      d. talahib



### ***Additional Activities***

**Directions:** Make a portfolio from cut-out pictures of plants from magazines. Describe each plant and be able to identify whether each plant has specialized characteristics/structures.

**Congratulations! You did well in this lesson.**



# Answer Key

**What I Know**

A. Pupils' answer may vary.  
 B. 1. rose  
 2. water lily  
 3. gabi  
 4. cactus  
 5. lipang aso

**What's In**

1. a  
 2. c  
 3. c  
 4. b  
 5. b  
 6. a  
 7. b  
 8. b  
 9. d  
 10. a

**What's New**

1. Marang, durian – pungent odor of fruits  
 2. Kalumpang tree- unpleasant odor of flowers  
 3. Bird of paradise- thick cuticle  
 4. Talahib/cogon- sharp leaf  
 5. Pineapple- sharp/thorny leaves  
 6. Cactus- fleshy stem  
 7. Citrus plants- strong smelling leaves and fruits  
 8. water lily- flat leaves  
 9. water hyacinth- long roots  
 10. lotus-thick flat leaves

**Guide Questions:**  
 1. The specialized parts of the given plants are their fruits, flowers, stem, leaves and roots.  
 2. They are special because other plants don't have their special characteristics.

**Activity 2**

Name of plants	Land	Water
1. talisay tree	/	/
2. water lily	/	/
3. lotus	/	/
4. narra tree	/	/
5. sampaguita	/	/

**Guide Questions:**  
 1. Plants can grow on land and in water.  
 2. Plants that can grow on land are Talisay Tree, Narra Tree and Sampaguita. Water lily and Lotus live in water.  
 3. Plants that can grow on land and in water are Talisay Tree, Narra Tree and Sampaguita. Water lily and Lotus live in water.

**What's More**

**Activity 1**

1. stem  
 2. fruit  
 3. stem  
 4. leaves  
 5. roots

**Activity 2**

6. roots  
 7. roots  
 8. leaves  
 9. stem  
 10. flower

Specialized Structure	Description	Example
waxy leaves	Has waxy leaves which help protect themselves from dehydration	Gabi
fleshy stem	Has fleshy stems to conserve water	Cactus
thorny and hairy stem	Has thorny and hairy stem as it's protective structure	Lipang Aso
thick and buoyant leaves	Has thick and buoyant leaves for flotation	Water Lily
flat and broad leaves	Has flat and broad leaves so they tend to float in water	Lotus

**What I Have Learned**

Pupils' answer may vary.

**What I can Do**

1. d 2. a.

**Assessment**

1. c 2. d 3. d 4. a 5. c  
 6. c 7. d 8. b 9. d 10. d

## ***References***

Abutay L., Bonao D., Crucis E., Eslabra J., Gramaje E., Guadamor M., Hernandez A., Ilagan L., Llamera F., Manawatao R., Panganiban H., Rojo J., Tosco RR., and Zape J., Science Grade 4, Teacher's Guide, First Edition 2015. Department of Education (2015), p. 123-138

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**For inquiries or feedback, please write or call:**

Department of Education - Bureau of Learning Resources (DepEd-BLR)  
Ground Floor, Bonifacio Bldg., DepEd Complex Meralco Avenue, Pasig  
City, Philippines 1600

Telefax: (632) 8634-1072; 8634-1054; 8631-4985

Email Address: [blr.lrqad@deped.gov.ph](mailto:blr.lrqad@deped.gov.ph) \* [blr.lrpd@deped.gov.ph](mailto:blr.lrpd@deped.gov.ph)