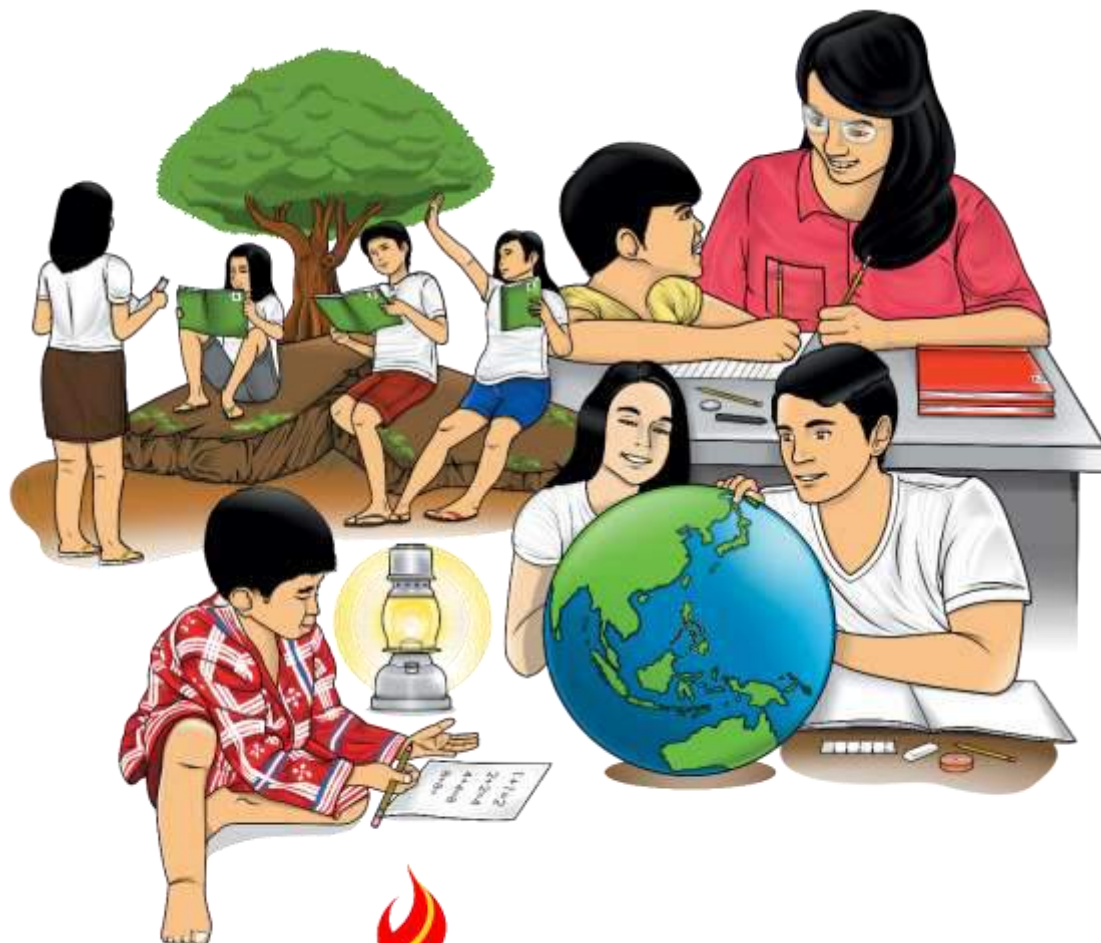


Science

Quarter 4 – Module 1: “Types and Characteristics of Soil”



Science – Grade 4
Alternative Delivery Mode
Quarter 4 – Module 1: “Types and Characteristics of Soil”
First Edition, 2020

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Science

Quarter 4 – Module 1: “Types and Characteristics of Soil”

Introductory Message

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What I Need to Know

This module was designed and written for you to enjoy while learning. This will help you know the nature of soil, its types, and characteristics. The activities and exercises provided for you will develop your skills and will be able to apply specific skills from this lesson. You will also enjoy every activity even though you're away from school. So good luck and have fun!

The module will focus on:

- **Lesson 1** – Soil: Its Types and Characteristics(S4ES-IVa-1)

After going through this module, you are expected to be able to:

1. identify the different types of soil based on their physical characteristics; and
2. compare and contrast the characteristics of the different types of soil.



What I Know

A. Directions: Identify the types of soil shown in the picture. Choose your answer from the box below and write it in your science notebook.

loam clay sand

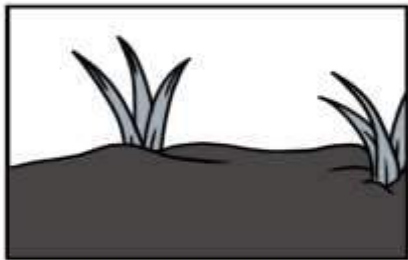
1.



2.



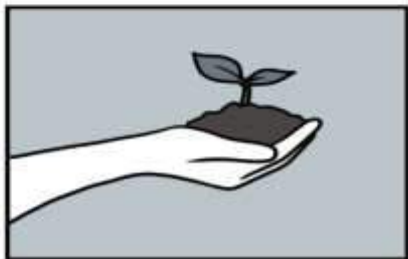
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4.



5.



6.



Illustrated by: Jotham D. Balanzo

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

_____ 1. It is a small particle of rocks that contains decayed tiny organisms and plants.

a. clay

c. sand

b. loam

d. soil

_____ 2. The kind of soil that is sticky when wet and has the finest texture.

a. clay

c. humus

b. loam

d. sand

- C. Directions:** Choose the different characteristics of the soil from the box and write them in the triad diagram below. Do it in your science notebook.

-



Good job!! It's a good start.

Lesson

1

“Types and Characteristics of Soil”

Soil is the land part of the Earth that we usually walk on. It is home to many living organisms like animals, plants, and humans. Soil also plays a vital role on the things that causes changes in the environment as it interacts with the existing elements in our surroundings and atmosphere.

Have you tried touching different types of soil? What have you noticed while looking or touching them? Do all types of soil have the same characteristics? You will be familiarized and enlightened as you perform the succeeding activities in this module. Let's start.



What's In

Directions: Read the statements very carefully. Write “T” if the statement is true and “F” if it is not. Do it in your science notebook.

- _____ 1. Sound is produced through vibrations.
- _____ 2. Refraction happens as the light bends.
- _____ 3. The bouncing of light is called reflection.
- _____ 4. All materials allow light to pass through them.
- _____ 5. Sound wave is absorbed when it bumps a hard smooth object.

Perfect! You got it right. You can now proceed to the next activities.



What's New

Note to Parent/Guardian: Guide your children while doing the various activities in this module. Remind them to observe precautionary measures and to be careful in handling the materials while performing the activity.

To the Learner:

Directions: Perform each activity and answer the questions that follow. Write your answers in your science notebook.

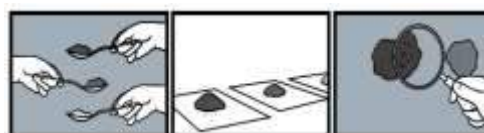
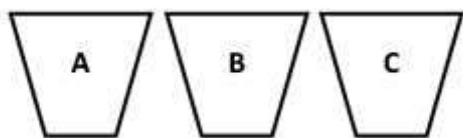
Activity 1: “Can You Identify Me?”

What you need:

- 3 clear plastic cups of the same size
- 3 popsicle sticks
- 3 plastic spoons
- hand lens (optional)
- 3 sheets of used bond paper or any used paper
- hand shovel
- permanent marker
- a pair of gloves

What to do:

- Get three samples of soil from different areas (sandy area, garden area and muddy area) and place each on separate container.
- Label each sample as A, B, and C.



Illustrated by: Jotham D. Balonzo

- Take at least two tablespoons of soil from each sample.
- Place each sample on a separate sheet of paper.
- Using a hand lens (optional) and a popsicle stick, observe each sample.
- Write your observations in the table similar to the one below.

Soil Characteristics			
Soil Sample	Color	Texture	Odor
A - Sand			
B - Clay			
C - Loam			

Guide Questions:

1. What characteristics did you observe in comparing your soil samples?
2. Which soil sample has the darkest color? The finest texture? and the strongest odor?
3. What science idea can you infer about different soil samples?

Activity 2: “Where do We Differ, Where are We Same?”

Directions: Look at the pictures of the different types of soil and write their similarities and differences in the Venn diagram. Write your answer/s in your science notebook.



Illustrated by: Jotham D. Balonzo

TYPES OF SOIL



Illustrated by: Jotham D. Balonzo

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




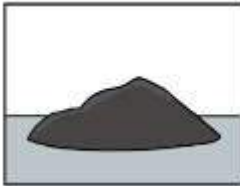
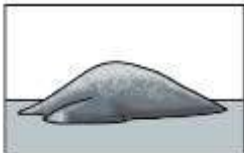
What is It

Points to Remember:

Soil covers most of the land part of the Earth. You find plants, animals, houses and other organisms on the soil. We live on the soil and it helps us in so many ways.

Soil is made up of smallest particles of rocks, which contains decayed matter of plants and animals. Humus comes from decaying plants and animals. Different types of soil have different physical characteristics. Each soil type differs in color, texture, odor and its ability to hold water. Some soils are good for planting while others are not. The presence of the different kinds of vegetative plants in a place is an evidence of a good quality of soil in the area or locality.

There are three different types of soil in our environment as shown in the table below.

Types of Soil		Common Characteristics
1. Clay		The particles are packed together tightly. It is sticky when wet and has the finest texture. It holds much water.
2. Loam		It is a mixture of sand and clay. It has a fine texture. It can hold enough amount of water and contains large amounts of decaying plants and animals and organisms which make it best for planting and growing crops.
3. Sand		It does not hold water well because the particles are coarse and loose.

Illustrated by: Jotham D. Balonzo

Soil is a system into which energy and matter from the Sun, the atmosphere, and living organisms penetrate and interact. It is a system because it is composed of many different parts and layers. Each of the layers has unique characteristics and has special function to perform.

The main layers of the soil are organic, topsoil, subsoil, parent rock, and bedrock.

Layers of Soil

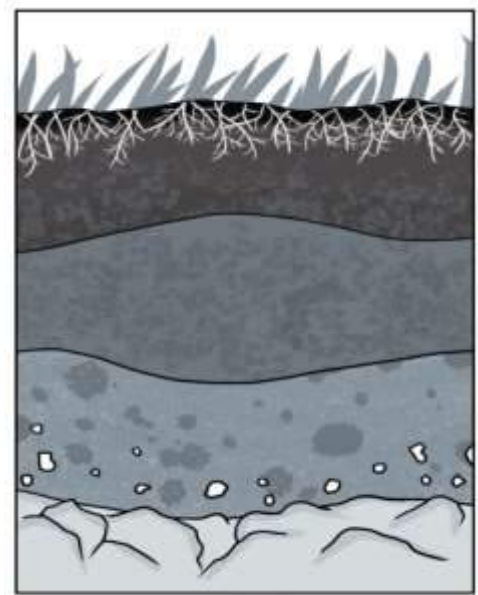
Organic – consists of dried leaves, twigs, small rocks, surface organisms and decaying plants and animals.

Topsoil (A Horizon) – is often rich in humus (decayed or decomposed plants and animals) and minerals.

Subsoil (B Horizon) – is poor in humus but rich in minerals.

Parent rock (C Horizon) – has little or no plant or no animal life.

Bedrock (R Horizon) – consists of large solid mass of rocks.



Illustrated by: Jotham D. Balonzo

Layers of the Soil Profile

The soil is arranged in layers or horizons during its formation. These layers or horizons are known as the soil profile. It is the vertical section of the soil that is exposed by a soil pit. The layers of soil can easily be identified by the soil color and size of soil particles. Each layer has its own characteristics.

The Organic (also known as O – Horizon). This is the upper layer of the top soil which is mainly composed of organic materials such as dried leaves, grasses, twigs, fallen trees, small rocks, surface organisms, and other decomposed organic matter. This layer is often black brown or dark brown in color and this is mainly because of the presence of organic content. This layer is thin in some soils, thick in others and not present at all in other soils.

The Topsoil (A-Horizon). This is the uppermost layer of the soil. This layer is rich with organic materials and is called as the **humus layer**. Humus comes from decaying plants and animals. It is also rich in soil minerals which are needed for plant growth. The soil's dark color is a sign of the presence of humus. Several kinds of plants can be seen growing on this layer. Small organisms such as earthworms, centipedes, fungi, algae, and microorganism like bacteria are living in this layer. The topsoil is soft and porous to hold enough air and water.

The Subsoil (B-Horizon). This is located just below the top soil and above the parent rock. It is composed primarily of clay, mineral deposits which drain from the topsoil, loosely arranged rocks and organic matter. This layer contains less humus and organic matter but rich in minerals. This layer holds water than the top soil and is lighter brown due to the presence of clay soil. It is comparatively harder and compact than top soil. When the top soil is washed out, the sub soil alone cannot support plant life.

The Parent Material or Rock (C-Horizon) is composed of large rocks or slightly broken-up bedrock. It is called the parent material because upper layers developed from this layer. Plant roots do not penetrate into this layer. It does not contain organic matter, necessary nutrients and water needed for plant growth. It is exposed to very little weathering.

The Bedrock (R-Horizon) is the bottom layer several feet below the surface. It is made up a large solid mass of rock or undisturbed large boulders. Bedrock is made up of igneous, sedimentary, or metamorphic rocks. This layer contains materials good for constructing buildings and making roads. No plant life can survive in this layer.







<p>Great learning! And now, let's have more activity.</p>
--



What's More

Activity 1 "Match and Learn"

Directions: Match the pictures in Column A to its name in Column B. Write your answer in your science notebook.

A	B
1 	a. subsoil
2 	b. sand
3 	c. parent rock
4 	d. clay
5 	e. bedrock
6 	f. loam



Illustrated by: Jotham D. Balonzo

Activity 2 “Which is Which?”

Directions: Put the following symbols before each number that describes the characteristics of soil. Write your answer in your science notebook.



- Clay



- Loam



- Sand

_____ 1. The particles are packed tightly and become sticky when wet.

_____ 2. The particles are coarse and loose.

_____ 3. It is a mixture of sand and clay and contains a large amount of decayed animals and plants.

Activity 3 “Compare and Contrast”

Directions: Compare and contrast the different characteristics of soil. Write your answer in your science notebook.



Illustrated by: Jotham D. Balonzo

Size of particles:
Texture:
Color:

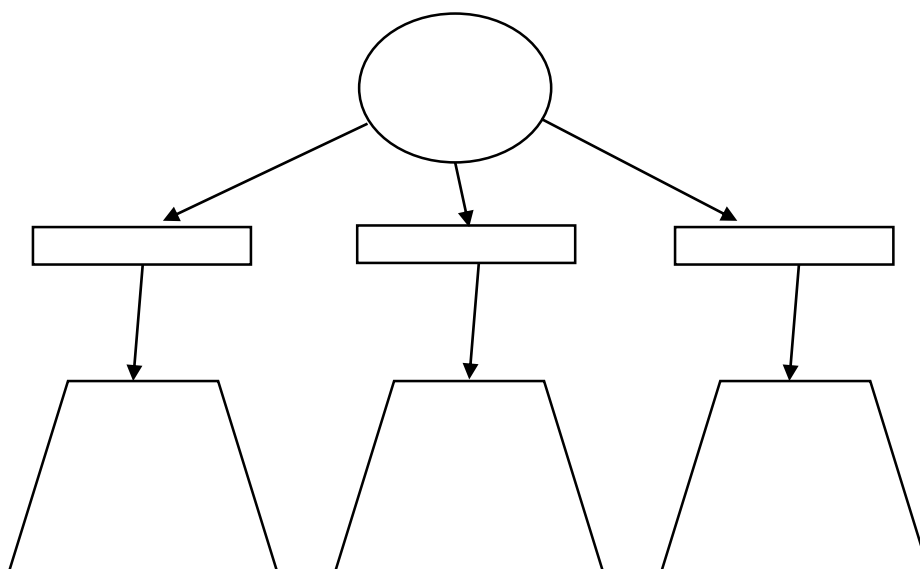
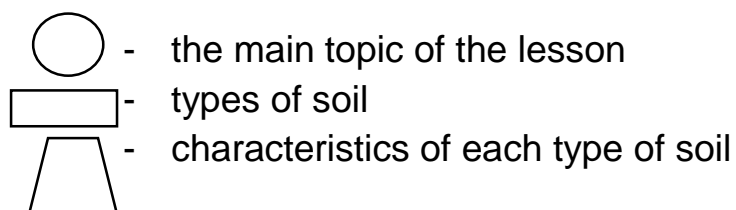
Size of particles:
Texture:
Color:

Size of particles:
Texture:
Color:



What I Have Learned

Directions: Fill out the graphic organizer below by writing the needed information. Do it in your science notebook.



Great answers! You learned well in these activities. Now it's time for you to apply what you have learned.



What I Can Do

Directions: In your science notebook, write your answer based on the situation below.

The local *barangay* of *Minasag* will conduct a Tree Planting activity. You would like to join the said event. What kind of seedlings will you choose if the kind of soil in your *barangay* is loam? Why?

Yes! You really are doing great. I know you are having fun so let's check this one.



Assessment

A. Directions: Read the statements very carefully. Write **YES** if the statement is correct and **NO** if it is not. Do it in your science notebook.

1. Soil covers most of the land part of the Earth.
2. All types of soil have the same characteristics.
3. Some soils are good for planting, while others are not.
4. The three types of soil are clay, loam, and sand.
5. Soil is made of small particles of rocks and contains humus.
6. Sand contains large amount of decaying plants and animals.
7. Clay is the type of soil where particles are packed together tightly.
8. Loam is good for growing plants because it cannot hold water well.
9. Humus contains the right amount of nutrients needed for growth of plants.
10. Each soil type differs in color, texture, odor, size of particles, and its ability to hold water.

B. Directions: Fill out the table correctly with the characteristics of the different types of soil. Do it in your science notebook.

Characteristics	TYPES OF SOIL		
	Clay	Loam	Sand

That's incredible! You did well in this lesson.



Additional Activities

Directions: Prepare these materials:

- 3 jars or recycled plastic containers
- 3 types of soil (clay, sand, and loam)
- marking pen
- mongo seeds or any available seeds
- water

Reminder: Keep safe all the time.

1. Get samples of the three types of soil.
2. Place on a separate containers and label them "Clay," "Sand," and "Loam."
3. Sprinkle water on each container until each soil gets wet but not to submerge the soil samples.
4. Put some mongo seeds or any available seeds in each of the containers and observe them every day.
5. After three days, observe which jar did mongo seeds or other seeds you used germinate.

**Congratulations! You did well in this module.
Good luck in your next journey.**



Answer Key

ACTIVITY 2: "Where do We Differ, Where are We the Same?"

TYPES OF SOIL

What's More

ACTIVITY 1: "Match and Learn"

1. d	2. b	3. t	4. g
5. g	6. a	7. e	

ACTIVITY 2: "Which is Which?"

ACTIVITY 3: "Compare and Contrast"

Color	Texture	Size of particles
brown, gray	coarse	SAND
gray, black	fine	LOAM
gray, brown	finest	CLAY

What I Know

A.

- clay
- clay
- loam
- sand
- loam
- sand

B.

- d
- a
- b
- c
- d

C.

CLAY	LOAM	SAND
has the finest texture	mixture of sand and clay	coarse and loose
	contains humus	

What's In

- t
- t
- t
- f
- f

What's New


ACTIVITY 1: "CAN YOU IDENTIFY ME?"

Answers may vary.


Answers to Guide Questions:

- They are all types of soil.
- No, because they differ in characteristics.
- Answers may vary.
- Soil is made up of smallest particles of rocks which contain decayed matter of plants and animals.

What I Have Learned



What I Can Do



Clay

- very fine particles of rocks and hold much water
- Become very sticky when wet


Loam

- mixture of san and clay
- contains decayed plants and animals
- best for planting


Sand

- coarse and loose
- does not hold water well

Assessment



Additional Activities



A

1. YES
2. NO
3. YES
4. YES
5. YES
6. NO
7. YES
8. NO
9. YES
10. YES

B

Characteristics	
Clay	<ul style="list-style-type: none"> • particles packed together tightly • finest texture • sticky when wet
Loam	<ul style="list-style-type: none"> • mixtures of sand and clay • fine texture • contains large amount of decayed plants and animals
Sand	<ul style="list-style-type: none"> • loose and easy to dig • coarse particles • cannot hold much water

Answers may vary

References

Abutay, Lelani R., et. al. *Science 4 Learner's Material*, 224-248.
Pasig City: Department of Education, 2015.

Abutay, Lelani R., et. al., *Science 4 Teacher's Guide*, 287-293.
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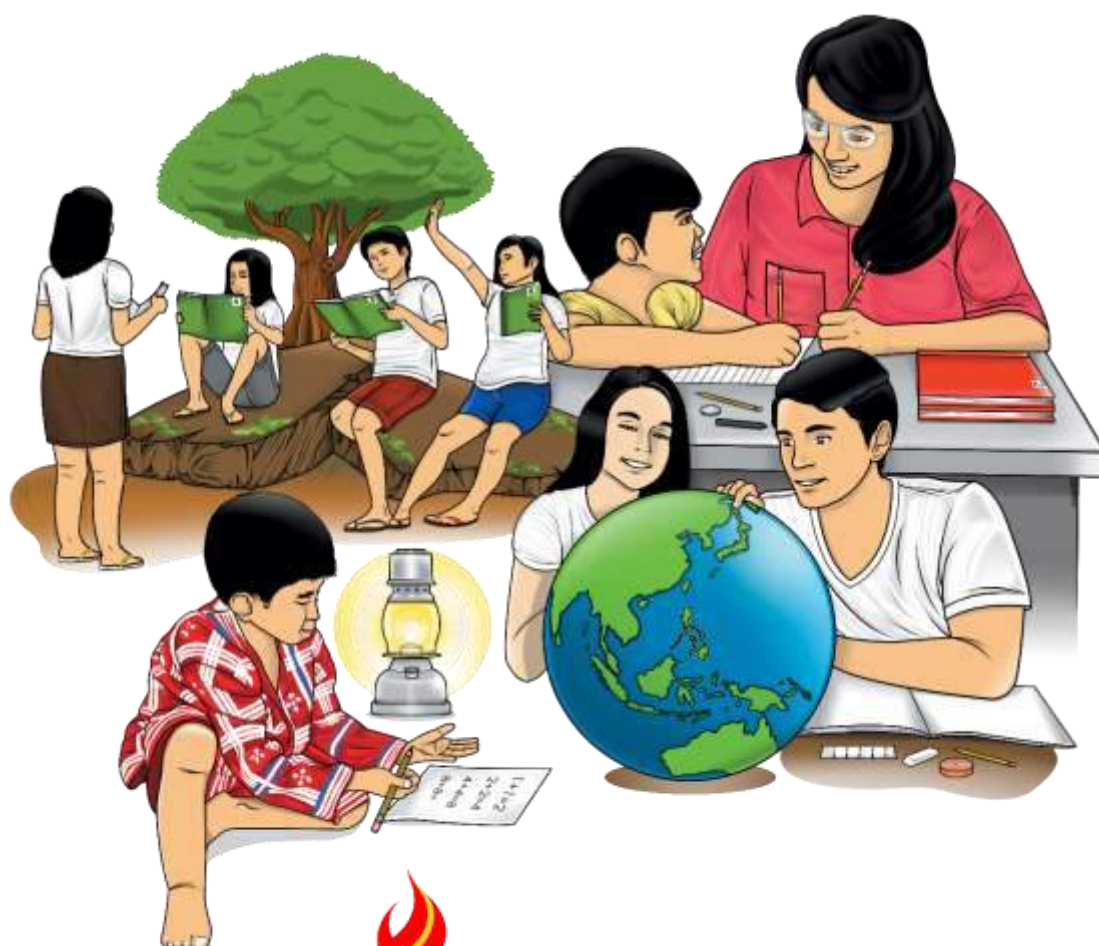
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Science

Quarter 4 – Module 2: “Uses of Water from the Different Sources”



Science – Grade 4
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Quarter 4 – Module 2: “Uses of Water from the Different Sources”
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Science

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Thank you.



What I Need to Know

This module was written to help you learn about water, its sources, and its importance to all living and non-living creatures in this planet. Different activities will greatly engage your mind and will make you realize the importance of water around us.

The module will focus on:

Lesson 1 – Uses of Water from the Different Sources (S4ES-IVb-2)

After going through this module, you are expected to be able to:

1. identify the different sources of water,
2. explain the uses of water from different sources in the context of daily activities; and
3. infer the importance of water in daily activities.



What I Know

A. Directions: Match each statement with the pictures below by writing the correct letter in your science notebook. Answers can be repeated.

- a. It contains plenty of salt that is why it is salty.
- b. It is a safe source of drinking water.
- c. It is also called surface water.
- d. It is found in rivers and lakes.
- e. It is considered the cleanest source of water.



1.



2.



3.

Illustrated by: Jotham D. Balonzo

B. Directions: Draw a star shape (☆) if the statement is correct and triangle shape(△) if it is not. Do it in your science notebook.

1. Water comes from open and closed sources.
2. Seawater is the habitat of aquatic plants and animals.
3. Water plays a vital role in the survival of all living things.
4. Groundwater comes from water that seeps into the ground.
5. Freshwater in rivers, lakes, and springs is not for recreation.
6. Rivers, lakes, creeks, and ponds are example of freshwater.
7. Seawater contains plenty of salt that is why it is called “hard” water.
8. Groundwater is not an important component in many industrial processes.
9. Freshwater is used for drinking, cleaning, washing, bathing, and other household uses.
10. Groundwater is the cleanest water and contains plenty of dissolved minerals which the human body needs.

How well did you perform the activity?		
		
15-11	10-6	5-0

Little by little, you're getting ahead. Anyway, it's just a starting exercise. Have fun because you will find it more interesting in the next activities.

Lesson**1****“Uses of Water from the Different Sources”**

Water is one of our most important resources. Anywhere we go and whatever we do, we always need water. We need water as much as we need air to breathe. It is also a renewable resource. Thanks to the water cycle. Before water reaches our kitchen sink, do you know where it came from? Do you know how and where we use water?

As you continue working through this module, you will be familiarized by the different activities about different sources and kinds of water, their uses in your daily activities and their importance to all living and non-living things in the environment.

***What's In***

Directions: Draw a smiley face (☺) if the sentence is correct and sad face (☹) if it is not. Do it in your science notebook.

- _____ 1. Sand particles are coarse and loose.
- _____ 2. All types of soil are good for planting.
- _____ 3. Each soil types differs in color, texture, and odor.
- _____ 4. Clay is sticky when wet and has the finest texture.
- _____ 5. Loam contains large amounts of decaying plants and animals.

You got it! You are now getting ahead. Have fun in the next activity.



What's New

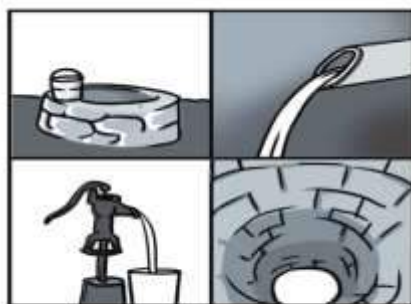
Note to Parent/Guardian: Guide your children while they are doing the various activities in this module.

For the learner:

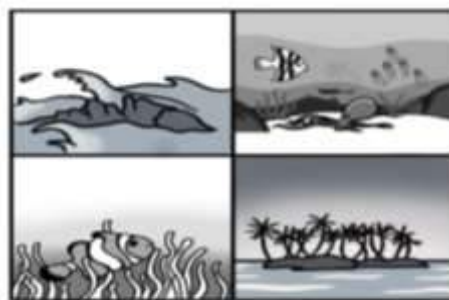
Activity 1: “4PICS, GUESS THE WORD”

A. Directions: Identify the source of water by guessing the four pictures for each number. Write your answers in your science notebook.

1.



2.



3.



4.



Illustrated by: Jotham D. Balonzo




Guide Questions:

1. What are the sources of water shown in each picture above?
2. Name some of the places where water is used (Example: farm).
3. How is water used in these places?
4. What are the sources of water in your barangay?
5. How are the different water sources kept safe and clean?

Activity 2: Cite My Uses!

Directions: Identify the uses of water from different sources as shown in the table. Choose your answer from the box and write it in your science notebook.

for drinking needed for plants to grow recreation
transportation washing clothes watering plants
habitat for marine animals cooking food cleaning

Sources of Water	Description	Uses
1. 	It contains plenty of salt and called “hard” water.	
2. 	It is found beneath the Earth’s surface and is a safe source of water.	
3. 	It does not contain salt and called surface water.	

Illustrated by: Jotham D. Balonzo

Guide Questions:

1. What is being emphasized in this activity?
2. What are our daily activities that make use of water? List them down.
3. Do you think we can live without water? Why?

Activity 3: Complete Me!

Directions: Infer the importance of water in daily activities by choosing the phrase from the box that matches to the picture on the pie. Write your answers in your science notebook.



Illustrated by: Jotham D. Balonzo

drinking	wasting water	swimming
playing	washing dishes	cooking
taking a bath	watering plants	



What is It

Points to Remember:

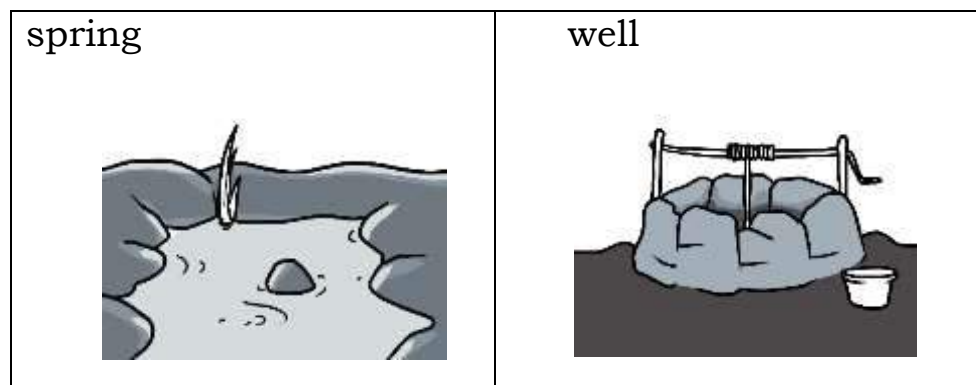
Water comes from open and closed sources. It may also come from small or big bodies of water. Rainwater comes from clouds.

Sources and Kinds of Water

1. Groundwater refers to any source of water found beneath the soil layer of the Earth's surface. It seeps into the soil or between rocks and other materials in the ground. It accumulates in the underground layer called water table. It is

the cleanest water and contains plenty of dissolved minerals which the human body needs. Most of the communities obtain their water from underground aquifers, or rock formations capable of holding large amounts of freshwater. Pollution, seawater contamination and overuse threaten this valuable resource.

Examples:

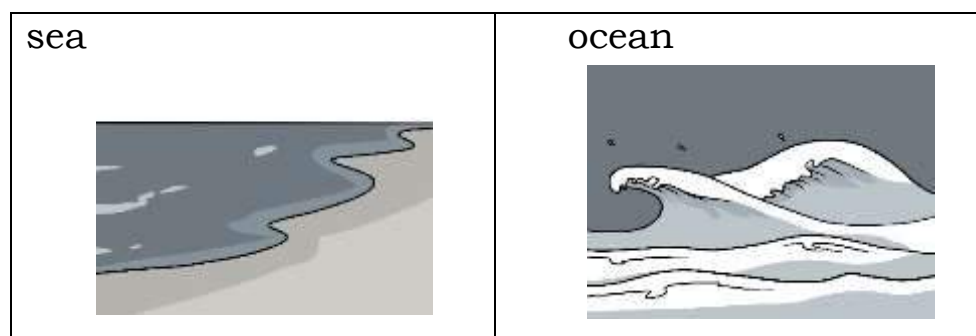


Illustrated by: Jotham D. Balonzo

2. Surface water includes any above-ground collection of water such as rivers, lakes, ponds, and oceans. Some sources of surface water are also fed by underground aquifers. Surface water accounts for 80% of the water humans use.

a. Ocean and sea water are salt water and are also called “hard” water. They are not potable water unless salt and other impurities are removed. Desalination is the process by which salt is removed from water. Salt water is 97% of all water and is found mostly in our oceans and seas.

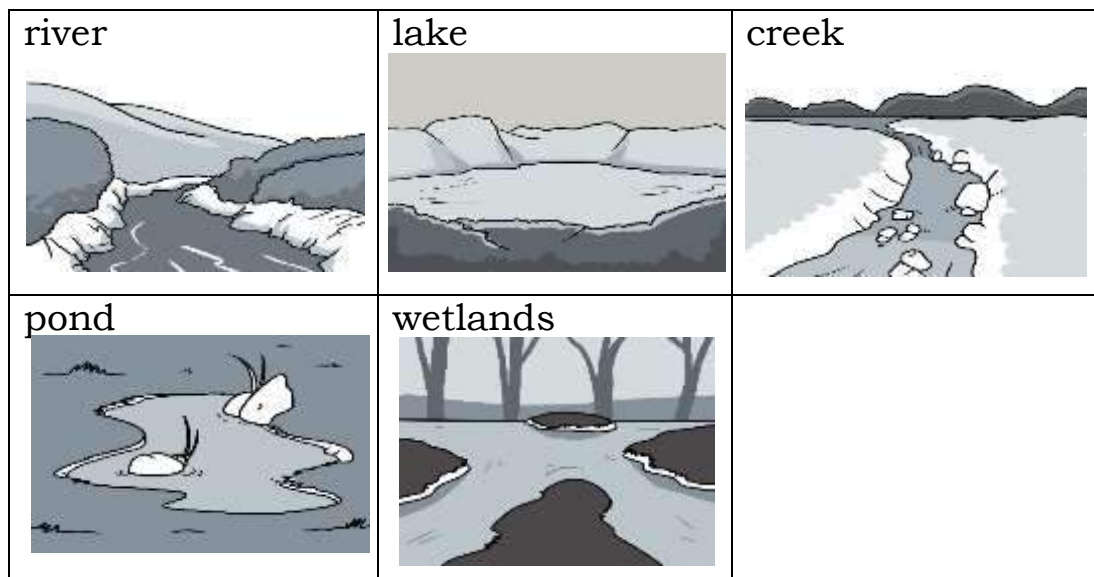
Examples:



Illustrated by: Jotham D. Balonzo

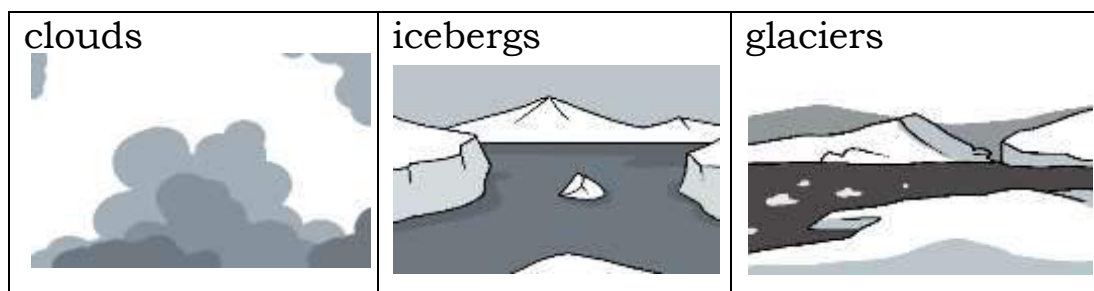
b. Freshwater is found in lakes, rivers, streams, ponds, wetlands, reservoirs, glaciers and even groundwater. Only 3% of the water on Earth is considered fresh water, with a mere 30% of that small amount being found as groundwater. Pollution decreases the quality of fresh water. Pollution is caused by a combination of runoff agricultural chemicals, poorly managed industrial processes, and lack of adequate treatment for sewage and urban waste.

Examples:



Illustrated by: Jotham D. Balonzo

Other sources of water are:



Illustrated by: Jotham D. Balonzo

Uses and Importance of Water in Our Daily Activities

a. Uses of Freshwater

Freshwater is used for drinking, cleaning, washing, bathing, preparing food, cooking and other household uses. Freshwater

also sustains plant and animal life. It is used to water plants and given to animals to drink. Without water, plants will wither; animals and people will die of thirst.

Freshwater in rivers, lakes and springs is used for recreation. One can go swimming or boating in these places. Clean rivers and lakes are also a rich source of shrimps, crabs, and shellfish.

Rivers and lakes whose water is not very clean may still be useful. They can serve as routes of transportation for boats. Water may also be used in farms for irrigation and livestock watering and factories.

b. Uses of Seawater

Seawater is the habitat of aquatic plants and animals as well as other marine organisms. The oceans, seas, rivers, lakes, and ponds are the habitats of most of the aquatic plants and animals which are used mainly for food and medicine.

c. Uses of Groundwater

Groundwater is a safe source of water and considered the cleanest water because it contains plenty of dissolved minerals which the human body needs. It is also used for irrigation to grow crops for our food.

Likewise, it is important component in many industrial processes. It is a source of recharge for lakes, rivers, and wetlands.



What's More

A. Directions: Match Column A with Column B. Write the correct letter in your science notebook.

- | A | B |
|----------------|--|
| 1. well | a. soft water |
| 2. river | b. contains plenty of salt |
| 3. seawater | c. example of freshwater |
| 4. freshwater | d. example of groundwater |
| 5. groundwater | e. found in lakes, rivers, and streams |
| | f. found beneath the Earth's surface |

B. Directions: Draw a heart shape (♥) if it shows good practice about the use of water and cross shape(✖)if it does not. Draw your answer in your science notebook.

- _____ 1. Watering of plants.
- _____ 2. Using water for cooking.
- _____ 3. Washing of hands and feet.
- _____ 4. Playing with water even during bath time.
- _____ 5. Letting the faucet open while brushing teeth.

C. Directions: Infer the importance of water in daily activities. Write **True** if the statement is correct and **False** if it is not. Write your answer in your science notebook.

- _____ 1. Water is used in industries.
- _____ 2. Dirty water can no longer be used.
- _____ 3. Water is used to clean our homes.
- _____ 4. Humans can survive without water.
- _____ 5. Seawater is home to many aquatic animals.

You're way ahead! Continue your journey to reach the top.



What I Have Learned

Directions: Supply the boxes with the correct word or phrases. Write it in your science notebook.

- renewable resource brought about by water cycle
- three sources of water
- uses of seawater
- uses of freshwater
- uses of groundwater
- importance of water in the daily activities

You have made it! So, let's see what you can do in the next activity!



What I Can Do

Directions: In your science notebook, briefly explain your understanding regarding the given situation below.

The community you are living in is experiencing water shortage due to the intense heat of summer season. Your mother told you to water the plants daily. What will you do if there is a little supply of water? How can you help in the conservation of water?

Very Good! You did great. You may now proceed to the next activity.



Assessment

A. Directions: Supply the “bank” with the correct word. Write your answer in your science notebook.

1. _____ is the habitat of aquatic plants and animals.
2. _____ is the safest source of water and considered the cleanest water.
3. _____ is used for cleaning, drinking, washing, bathing, preparing food, cooking, other household uses, swimming, transportation, and farming.

B. Directions: Fill in the table below with the correct information. Write your answer in your science notebook.

Sources of water	Uses	Description
Seawater		
Freshwater		
Groundwater		

C. Directions: Enumerate six importance of water in our daily life activities. Write your answer in your science notebook.

1. _____.
2. _____.
3. _____.
4. _____.
5. _____.
6. _____.

Superb! You did well in this lesson.



Additional Activities

Directions: With the sets of learning you got from this module, write a two-paragraph essay about the importance of water in your daily life. Also include the ways on how you could conserve water. Write it in your science notebook.

Congratulations! You are now ready to take the next module.



Answer Key

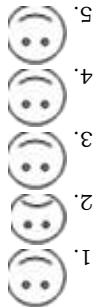
Sources of Water	Description	Uses
Seawater	It contains plenty of salt and called hardwater.	home for aquatic plants and animals that are uses mainly for food and medicine
Groundwater	It is found beneath the earth's surface and is the safe source of water.	for drinking, cooking, used for irrigation to grow crops
Freshwater	It does not contain salt and called surface water.	cleaning, recreation, transportation, washing, drinking, bathing, preparing food, cooking and another household uses

Activity 2: Cite My Uses

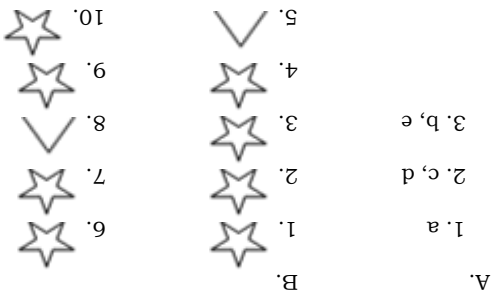
Guide Questions:
 1. Groundwater, seawater, and freshwater
 2. Answers may vary
 3. Answers may vary
 4. Answers may vary
 5. Answers may vary

Activity 1 (Pics, Guess the Word)

What's New



What's In



What I Know

Additional Activities

1. for recreation
2. for household chores
3. for growing of crops
4. for transportation
5. for food and medicine

Answers may vary.

Assessment

Answers may vary.

What I Can Do

- water
- seawater, freshwater, groundwater
- seawater - for food and medicine, for transportation
- freshwater - for drinking, cleaning, cooking and other household chores, transportation, irrigation, and livestock watering etc.
- groundwater - source of drinking water, used in growing crops, recharge for lakes, rivers, and wetlands.
- Answers may vary

What I Have Learned

1. d
2. c
3. b
4. e
5. f

What's More

1. drinking
2. cooking
3. washing dishes
4. bathing
5. watering plants
6. swimming

Activity 3 (Complete Me)

- Guide Questions:
1. The different uses of the sources of water are being emphasized in this activity.
 2. Recreation, transportation, cooking, washing, cleaning, watering plants and other household chores
 3. No, because water is one the necessities of all living things here in our planet.

References

Abutay, L., Bonao, D., et. al., *Science grade 4: Learner's material*
(Department of Education, 2015) pp. 258-266

Abutay, L., Bonao, D., et. al., *Science grade 4: Teacher's guide*
(Department of Education, 2015) pp 301-308

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A collage of illustrations depicting various educational and learning activities. In the top left, a group of students are gathered under a large green tree; one student stands while others sit on a log, all holding green books. In the top right, a female teacher with glasses and a pink shirt sits at a desk, smiling as she interacts with a male student. In the middle right, a male and female student are looking at a large globe of the Earth. In the bottom left, a male student in a red and white patterned shirt sits on the ground, writing on a piece of paper with a pen, with a glowing lantern nearby. At the very bottom center, there is a small illustration of a flame.



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Quarter 4 – Module 3: The Importance of Water Cycle
First Edition, 2020

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Science

Quarter 4 – Module 3: “The Importance of Water Cycle”

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

This module gives you information on the importance of water cycle in the environment. You will be given enough activities to master all the learning objectives in this module. Enjoy all the exercises allotted for you. Have a wonderful experience and enjoy the moment as you explore this module just for you.

The module will focus on:

- **Lesson 1** – The Importance of Water Cycle (S4ES-IVc-3)

After going through this module, you are expected to be able to:

1. explain the processes of the water cycle; and
2. describe the importance of the water cycle.



What I Know

A. Directions: Choose the phrases from the box that describe the pictures shown below. Write your answer in your science notebook.

improved hygiene practices
healthy animal growth

increased water storage
increased crop yield

healthy plant growth



3.



4.



5.



Illustrated by: Jotham D. Balonzo

B. Directions: Write **True** in the space provided if the statement is correct and write **False** if it is not. Do it in your science notebook.

- _____ 1. Snow is a precipitate.
- _____ 2. Clouds are signs of weather.
- _____ 3. Water vapor gathers in the hydrosphere.
- _____ 4. Hydrosphere is the water part of the Earth.
- _____ 5. Evaporation happens when water is heated.
- _____ 6. Plants and animals are not part of the water cycle.
- _____ 7. Plants can still survive even in the absence of water cycle.
- _____ 8. The water sphere or hydrosphere covers three-fourths of the Earth's surface.
- _____ 9. In the presence of water cycle, there could be a decrease in crop yield.
- _____ 10. Water cycle is a continuous movement of water between the Earth's surface and atmosphere.

How well did you perform the activity?



11 - 15



6 - 10



0 - 5

Lesson

1

The Importance of Water Cycle

In the previous lesson, you have learned the different sources and uses of water. You have also learned the importance of water in our daily life activities.

We all know that water is a very important resource in our day to day lives. But before water reaches your homes to be used for many purposes, do you really know the processes behind it? This is the question that you are going to answer as you perform the activities and learn from this module.



What's In

Directions: Draw a happy face (☺) if the sentence is correct and sad face (☹) if it is not. Do it in your science notebook.

- ____ 1. Water is a renewable resource which we can use daily.
- ____ 2. Freshwater in rivers, lakes and springs is not for recreation.
- ____ 3. Water is a great help for plants, animals, and man to survive.
- ____ 4. Groundwater is an important component in many industrial processes.
- ____ 5. Seawater is used for drinking, cleaning, washing, bathing, and other household uses.



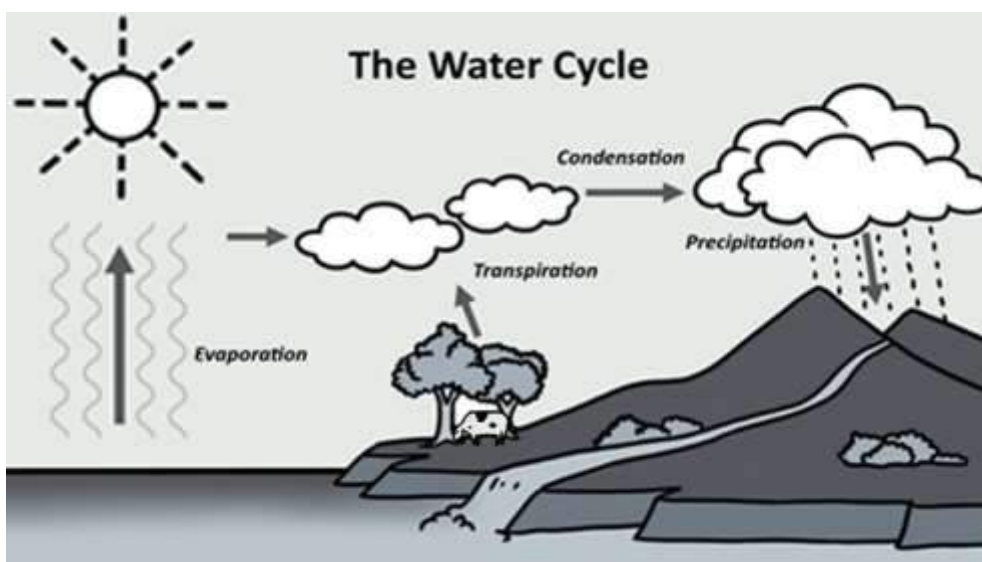
What's New

Note to Parent/Guardian: Guide your children while they are doing the various activities in this module.

To the Learner:

Activity 1: “How Important Am I in the Environment?”

Directions: Study the illustration below and answer the questions that following your science notebook.



Guide Questions:

Illustrated by: Jotham D. Balonzo

1. What is the illustration about?
2. What are the processes involved in the water cycle? List and try to describe them. You may think about the changes that happen to water as it transforms into different states of matter (solid, liquid and gas).
3. What do you think is the role of the Sun in the water cycle?
4. What do you think is water cycle as shown? Describe it by using your answers in questions No.2 and No. 3.

Activity 2: Fill Me Out

Directions: Describe the importance of water cycle to each of the items in the table. Do it in your science notebook.

HUMAN	PLANTS	ANIMALS	ENVIRONMENT

Guide Questions:

1. What do you think will happen if we run out of water?
2. What other things will be affected if there is no water?



What is It

Points to Remember:

- The water part of the Earth is called **hydrosphere** or “**water sphere**”. This covers about three-fourths of its surface.
- **Water cycle** is a continuous process of changing liquid water into water vapor (gas) when heated and turns back to liquid water when cooled above and below the surface of the Earth. Water is transferred from the Earth’s surface to the atmosphere through evaporation. Bodies of water, clouds, evaporation, and condensation including living things all play important roles in the water cycle.
- The **Sun** plays a major role in the water cycle. It is the main source of heat that causes evaporation process.

Processes involved in water cycle:

1. **Evaporation** - is the process of changing liquid water into water vapor (gas) and rises into the atmosphere. Roughly 80% of all evaporation comes from oceans while the remaining

20% comes from inland water and plant vegetation. More evaporation happens when the temperature is high and with faster wind speed.

2. Transpiration – takes place during evaporation process wherein water particles are released from the leaves of the plants and vegetation. The rate of transpiration gets higher with higher temperatures.

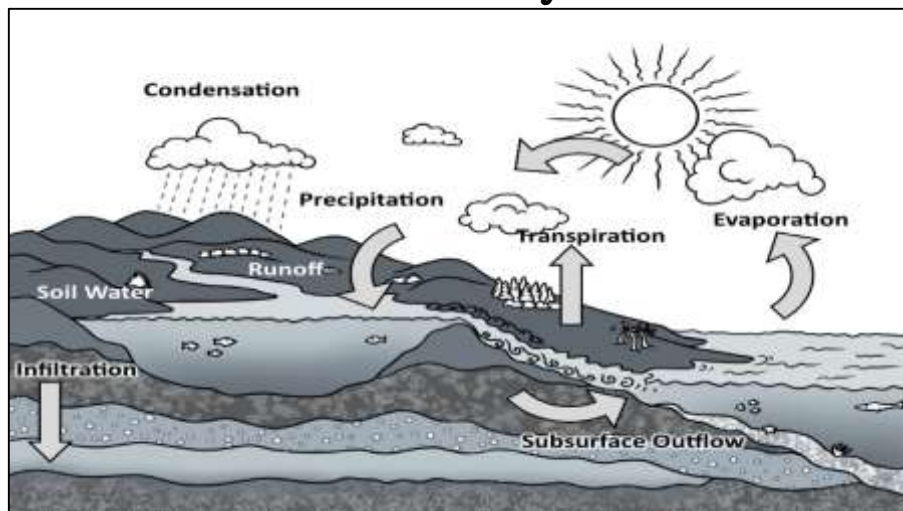
- **Respiration** - takes place when animals and humans breathe out water particles through their lungs and when they perspire, which evaporates into the atmosphere in lesser amounts. Animals contribute to the water cycle through respiration, perspiration and urination.

3. Condensation - is the process of changing water vapor (gas) into tiny droplets of liquid water in the form of clouds in the atmosphere. Condensation can be high in the atmosphere or at ground level. Water vapor condenses around tiny particles called cloud condensation nuclei (CCN). The cloud condensation nuclei can sometimes be specks of dust, salt, or pollutants. As tiny water droplets combine with each other, clouds develop, and precipitation may occur.

4. Precipitation - is the process by which the tiny condensed water droplets falls back into the Earth's surface in the form of rain, hail, snow and sleet.

Although there is a continuous cycle of water, you might wonder if there will come a time when we will run out of water. Did you know that 97% of the water found in our surrounding is salty? Thus only 3% of this water is fresh or potable. This very small amount of freshwater is 67% locked in the form of ice mainly found in Greenland and Antarctic. Therefore, only about 1% of freshwater is found in rivers, lakes, ponds, and in the atmosphere in the form of **water vapor**.

The Water Cycle



Illustrated by: Jotham D. Balonzo

Water cycle is important because it transforms salty water into fresh water during precipitation process. It is also known as **hydrologic cycle** describes how water evaporates from the surface of the Earth, rises into the atmosphere, cools and condenses into clouds, and falls again to the Earth's surface as precipitation in the form of rain, snow, hail or sleet. The water falling on land collects in rivers and lakes, soil, and porous layers of rock, and much of it flows back into the oceans, where it will once more evaporates. The cycling of water in and out of the atmosphere is a significant aspect of the weather patterns on Earth.

Importance of Water Cycle	
Human	<ul style="list-style-type: none"> • Continuous water supply for human consumption and industrial use • Improves health and hygiene practices
Animal	<ul style="list-style-type: none"> • Healthy animal growth • Continuous supply of fresh water
Plants	<ul style="list-style-type: none"> • Healthy plant growth • Increase production or yield crops • Continuous supply of fresh water
Environment	<ul style="list-style-type: none"> • Purifies water by eliminating pollutants • Distributes water all over the Earth's surface • Continuous supply of fresh water • Increase water storage as ground water



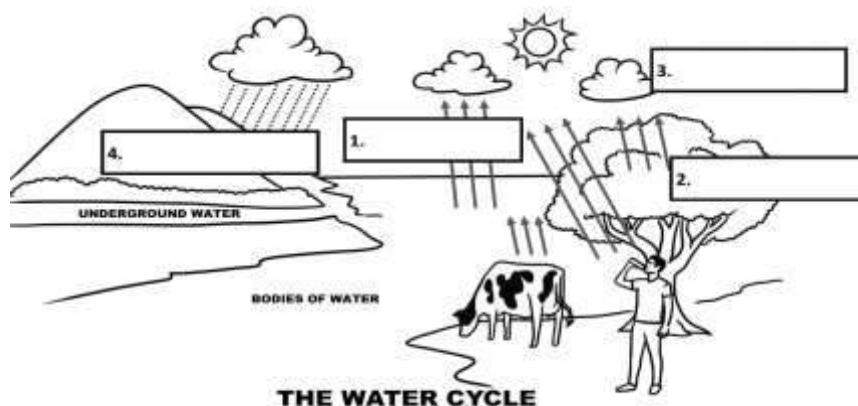
What's More

A. Directions: Choose from the box below the processes in the water cycle being described in each statement. Write your answer in your science notebook.

transpiration	respiration
evaporation	condensation
precipitation	

- _____ 1. The process by which plants release water from their leaves.
- _____ 2. The process by which the condensed water vapor falls back into the Earth's surface in the form of rain, hail, snow and sleet.
- _____ 3. The process of changing water vapor (gas) into tiny droplets of liquid water in the atmosphere.
- _____ 4. The process of changing liquid water into water vapor (gas), which comes from bodies of water and living things.
- _____ 5. The process by which human and animals breathe out water particles through their lungs and when they perspire.

B. Directions: Using the diagram below, identify and explain the processes involved in the water cycle. Write it in your science notebook.



Illustrated by: Jotham D. Balonzo

C. Directions: Complete the table by choosing the phrases inside the box that best describes the importance of water cycle.

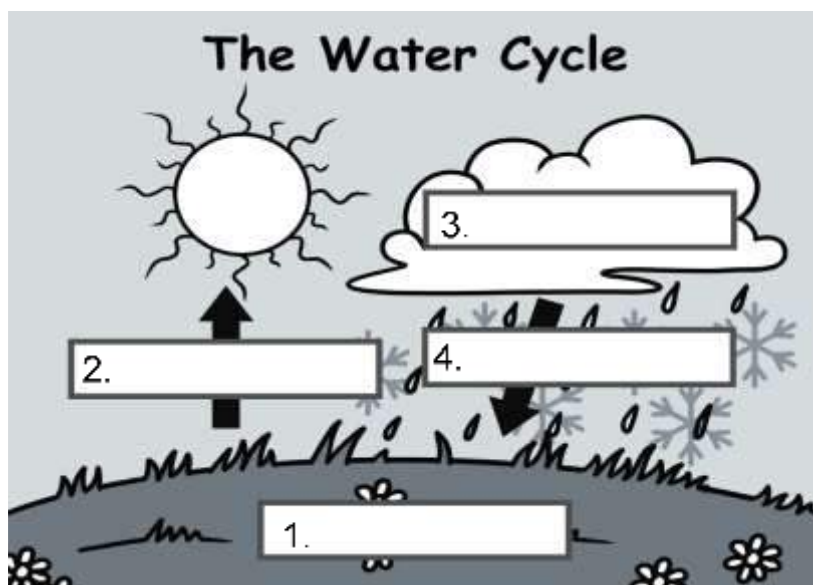
- | | |
|--|---|
| <ul style="list-style-type: none"> • plants growing healthy • lack of water supply • abundant supply of water • low market prices of vegetables and fruits | <ul style="list-style-type: none"> • healthy people • low quality products • growing population of animals |
|--|---|

HUMAN	PLANTS	ANIMALS	ENVIRONMENT



What I Have Learned

Directions: Complete the diagram of a water cycle below with the correct word. Write your answers in your science notebook.



Illustrated by: Jotham D. Balonzo

Superb! You did well in these exercises.



What I Can Do

Directions: In your science notebook, briefly explain what you think or understand about each situation which relates to the processes in the water cycle.

1. Your father is a salt maker. He goes to work at the beach everyday especially during summer. During rainy season, he stops working. Why could he not make salt during rainy days?
2. You live in the community where most of the people earn a living through farming vegetables and fruits. One day, you noticed that some of the plants are withered and wilted. Why?

What an extra special work! Keep on going as you are nearing the finish line.



Assessment

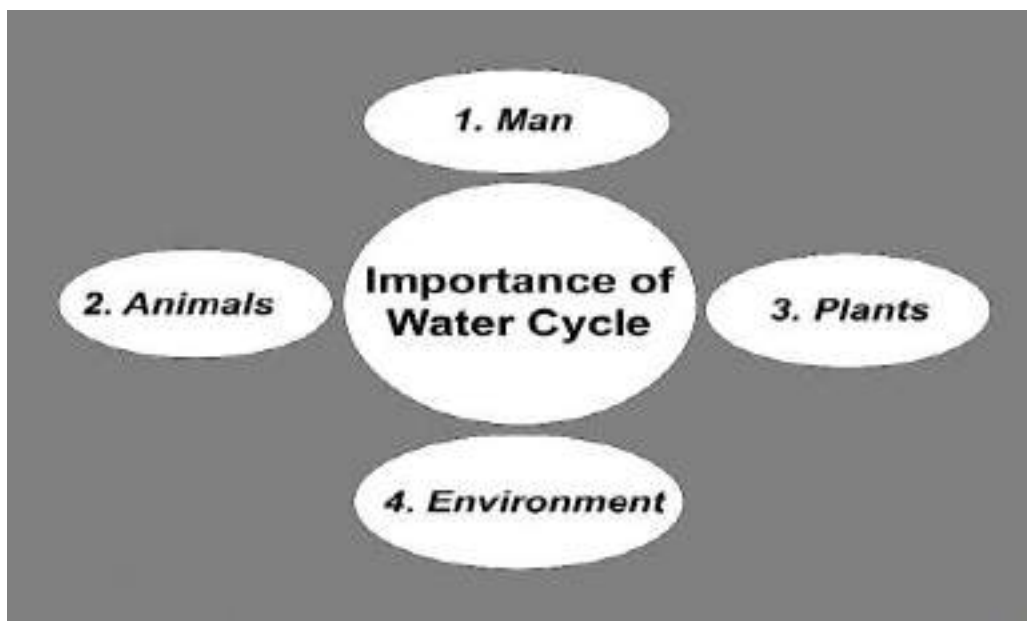
A. Directions: Briefly explain the processes involved in the water cycle. Write your answer in your science notebook.

- | | | |
|------------------|---|-------|
| 1. Evaporation | – | _____ |
| 2. Condensation | – | _____ |
| 3. Precipitation | – | _____ |
| 4. Transpiration | – | _____ |
| 5. Respiration | – | _____ |

B. Directions Put a check mark (✓) if it shows importance of water cycle and cross mark (x) if it shows effects of the absence of water cycle.

- ___ 1. increased crop yield
- ___ 2. withered plants
- ___ 3. increased water storage
- ___ 4. healthy animal and plant growth
- ___ 5. water shortage
- ___ 6. less sickness in people

C. Directions: Describe the importance of water cycle to **human, plants, animals, and environment** by filling out the concept map below. Do it in your science notebook.



Yahoo! You've made a progress.



Additional Activities

Directions: In your science notebook, draw the water cycle and explain the processes involved using your own words. Give some examples which show the importance of water cycle to man, plants, and animals.

Excellent! You've made it. You are now ready to go to the next module.



Answer Key

What I Know

A.
1. improved hygiene practices
2. healthy plant growth
3. increased crop yield
4. healthy animal growth
5. increased water storage
B.
1. true
2. true
3. true
4. true
5. true

6. false
7. false
8. true
9. false
10. True

What's In

1. ☹️
2. ☹️
3. ☹️
4. ☹️
5. ☹️

1. water cycle
2. evaporation - the process of changing liquid into gas
condensation - the process of changing water vapor into the liquid
precipitation - the process by which the condensed water vapor falls back on the earth's surface in the form of rain, hail, snow and sleet.
Transpiration - the process by which particles of water are released from the leaves of the plants
3. Sun plays the major role in the water cycle because it is the source of heat and needed in the evaporation process
4. is a continuous process of changing liquid water into water vapor (gas) when heated and back to liquid water when cooled.

Activity 1 - How Important Am I in the Environment

What's New

Guide Questions:

1. water cycle
2. evaporation - the process of changing liquid into gas
condensation - the process of changing water vapor into the liquid
precipitation - the process by which the condensed water vapor falls back on the earth's surface in the form of rain, hail, snow and sleet.
Transpiration - the process by which particles of water are released from the leaves of the plants
3. Sun plays the major role in the water cycle because it is the source of heat and needed in the evaporation process
4. is a continuous process of changing liquid water into water vapor (gas) when heated and back to liquid water when cooled.

1. Answers may vary
2. Answers may vary

Activity 2 Fill Me In

Man	Plants	Animals	Environment
<ul style="list-style-type: none"> • Healthy people • Less sick 	<ul style="list-style-type: none"> • Healthy growth • High quality products 	<ul style="list-style-type: none"> • Healthy growth • Bigger income 	<ul style="list-style-type: none"> • Abundant supply of water

Guide Questions:

1. Answers may vary
2. Answers may vary

1. Answers may vary
2. Answers may vary

What's More

A.

- transpiration
- precipitation
- condensation
- evaporation
- respiration

B.

- evaporation
- transpiration
- condensation
- precipitation

C.

Man	Plants	Animals	Environment
• Healthy people	• low market prices of vegetables and fruits	• growing population of animals	• Abundant supply of water

What I Have Learned

- Earth or land and water part
- evaporation
- condensation
- precipitation

What I Can Do

- Answers may vary.
- Answers may vary.

Assessment

A.

- evaporation - the process of changing liquid into gas
- condensation - the process of changing water vapor into the liquid
- precipitation - the process by which the condensed water vapor falls back on the earth's surface in the form of rain, hail, snow and sleet.
- transpiration - the process by which particles of water are released from the leaves of the plants.
- respiration - the process by which animals and man release particles of water during evaporation in smaller amounts.

B.

- ✓
- X
- ✓
- ✓
- X
- ✓

C.

- Man- improved hygiene practices
- Animals - healthy animal growth
- Plants - healthy plant growth
- Environment - increased water storage

Additional Activities

Answers may vary.

References

Abutay, Lelani R., et. al. *Science 4 Learner's Material*, 267-269.
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Pasig City: Department of Education, 2015.

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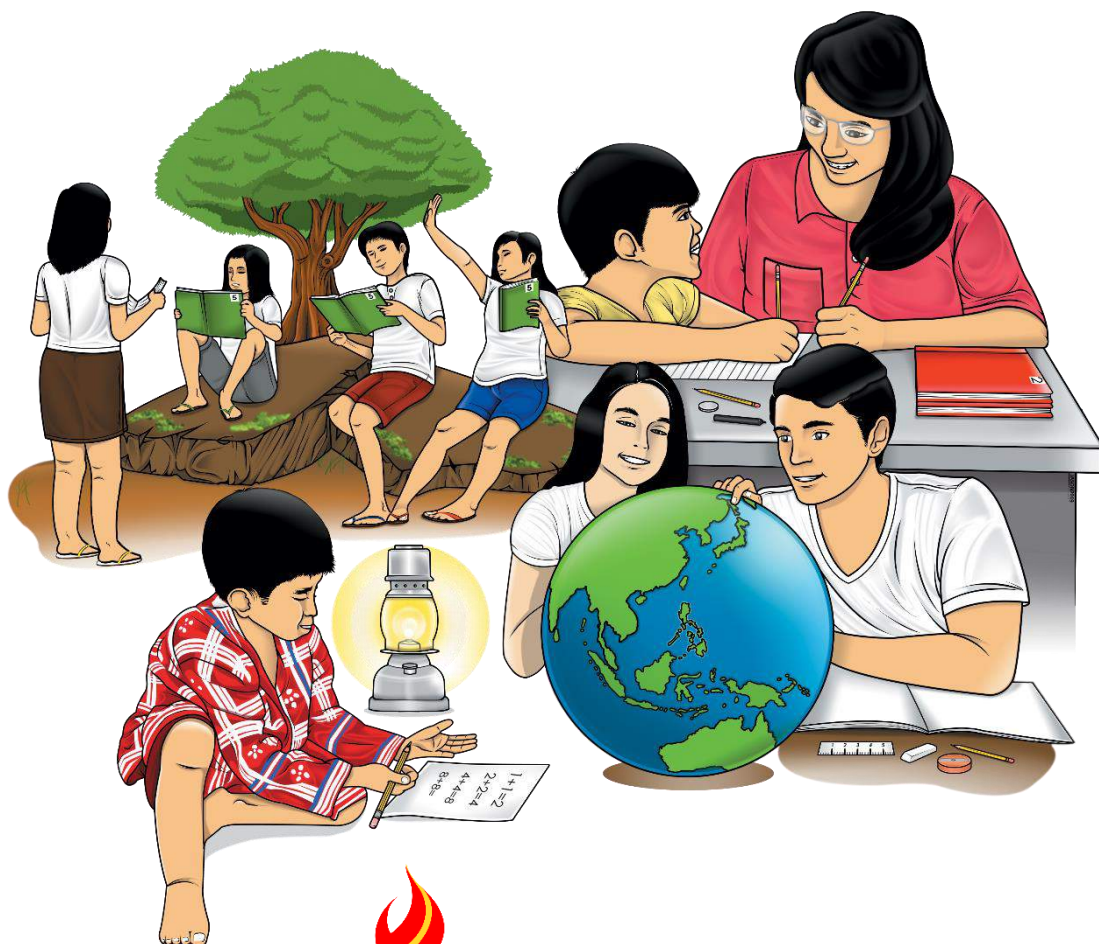
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Science

Quarter 4 – Module 4: “Weather”



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Science

Quarter 4 – Module 4:

“Weather”

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

This module was designed and written for you to help you identify how weather instruments are used to measure the different weather components. You will also learn how to describe in a chart the different weather conditions around in a certain area. Every activity will provide you much learning about weather.

The module will focus on:

- Lesson 1 – Using Weather Instruments and Describing Weather Components (S4ES-IVe-5)





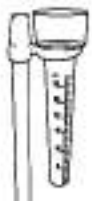
After going through this module, you are expected to be able to:

1. identify different weather instruments that measure the different weather components; and
2. identify the weather components recorded in a weather report.



What I Know

A. Directions: Match the following pictures in group A to its meaning in group B by writing the correct letter in your science notebook.

A		B
____ 1. 	____ 4. 	a. measures wind speed
____ 2. 	____ 5. 	b. measures wind direction
____ 3. 		c. measures the amount of rainfall
		d. measures the air temperature
		e. tells both the wind direction and wind speed

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B. Directions: Fill in the blanks with the correct answer. Write your answer in your science notebook.

1. The scientist who studies the weather is called _____.
2. The measure of the hotness or coldness of the atmosphere is called _____.
3. The instrument that measures and records temperature is _____.
4. The instrument that measures the speed of wind is the _____.
5. The _____ tells where the wind is from and where the wind is going.

C. Directions: Choose the letter of the correct answer. Write your answer in your science notebook.

1. Which Celsius thermometer shows the coldest temperature?
a. 37° b. 29° c. 28° d. 46°
2. Which of these instruments tells the direction of the wind?
a. anemometer b. telescope c. thermometer d. wind vane
3. What type of wind can blow away the roof of a house?
a. light wind c. north wind
b. moderate wind d. strong wind
4. Which instrument measures the hotness or coldness of the environment?
a. anemometer c. compass
b. barometer d. thermometer
5. You placed a wind vane in a windy place. You observed that its arrowhead pointed to the south direction. Where did the wind come from?
a. from east b. from north c. from south d. from west

Did you find it exciting? You will be familiarized with the lesson, as you go through the succeeding topics. Keep going.

Lesson

1

“Weather Instruments and Weather Components”

One of the ways to predict the weather is by measuring the air temperature. Weather conditions affect the day's temperature. To predict weather in our surroundings, weather instruments can be used in measuring different weather conditions. Weather charts also presents weather components that determine the weather condition at any given time.

Are you ready to learn more about weather and its components? This is going to be exciting and fun, so be patient for every activity that you are going to take.



What's In

A. Directions: Write **fact** if the statement is correct and **bluff** if the statement is not. Write your answer in your science notebook.

- _____ 1. Snow is a precipitate.
- _____ 2. Clouds are signs of weather.
- _____ 3. Water vapor gather in the hydrosphere.
- _____ 4. Evaporation happens when water is heated.
- _____ 5. Plants and animals are not part of the water cycle.

B. Directions: Supply the missing letters to make the statements correct. Write your answer in your science notebook.

- 1. Ci _ _us clouds are high feathery clouds.
- 2. Ni_b_s cloud is a cloud that produces precipitation.
- 3. C_m_lu_ clouds are the puffy clouds that look like puffs of cotton.
- 4. A c_ou _ is a large collection of very tiny droplets of water or ice crystals.
- 5. S_ra_ _s clouds are uniform grayish clouds that often cover the entire sky.



What's New

Note to Parent/Guardian: Guide your children in doing this activity and answer the following questions.

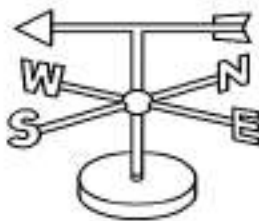
To the Learner:

Activity 1: “Identify Me?”

Directions: Identify the different weather instruments by choosing the correct word from the box below. Write your answer in your science notebook.

thermometer rain windsock
cloud rain gauge wind vane
anemometer

1.



2.



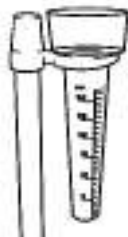
3.



4.



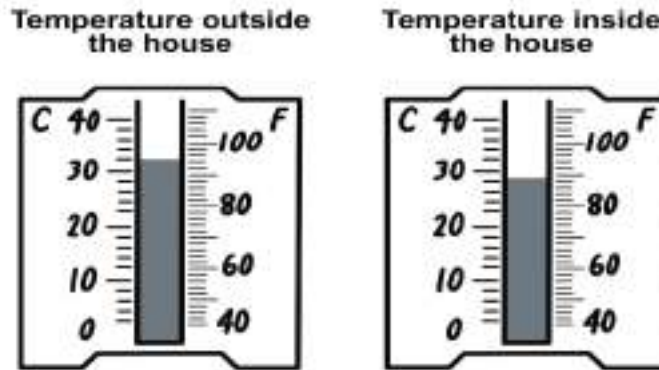
5.



Illustrated by: Jotham D. Balonzo

Activity 2: “How to Use It”

B. Directions: Read and list down the temperature readings of these two thermometers below in your science notebook.



Illustrated by: Jotham D. Balonzo

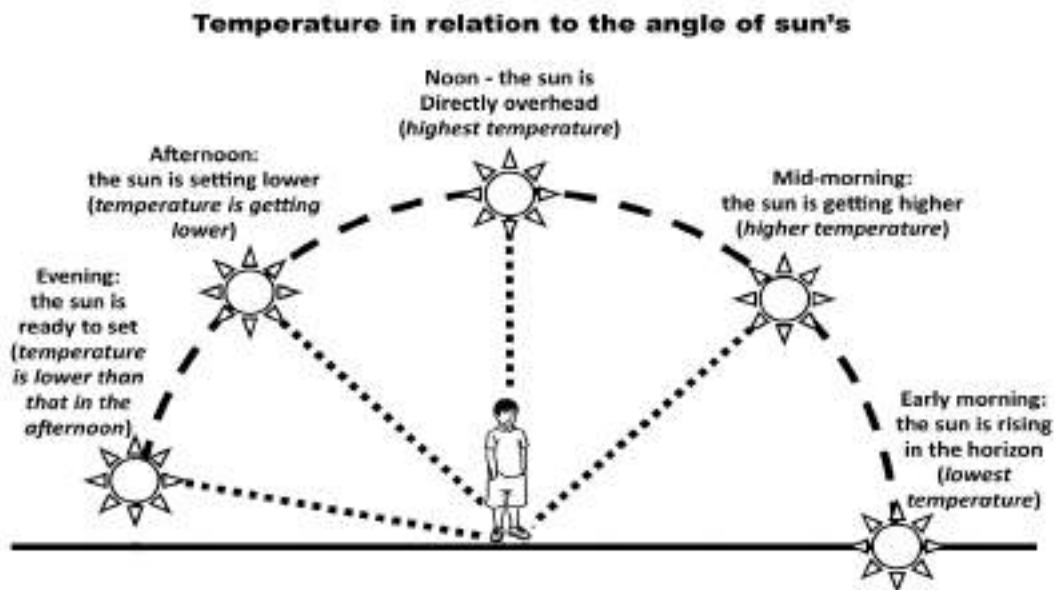
Guide Questions:

1. What do ° F and ° C means?
2. Why are there long and short lines?
3. What is the use of the red liquid inside the thermometer?
4. What is the temperature inside the house?
5. What is the temperature outside the house?
6. Which thermometer is showing the lower temperature?
7. Which thermometer is showing the higher temperature?
8. Compare the temperature readings inside and outside the house?

Activity 2.1 “What Factors Affect the Day’s Temperature?”

Directions: Study the chart below and answer the questions that follow.
Write your answer in your science notebook.

Weather Condition	Different Temperature at Various Times (in one’s school yard)			
	8:00 A.M.	10:00 A.M.	12:00 N.N.	2:00 P.M.
Fine	27° C	31° C	33° C	30° C
Fair	26° C	28° C	29° C	27° C
Rainy	23° C	24° C	25° C	24° C



Illustrated by: Jotham D. Balonzo





Guide Questions:

1. What factors affect the day's temperature?
2. At what weather condition are the temperatures low?
3. At what weather condition are the temperatures high?
4. At what time of the day is the temperature at its lowest?
5. At what time of the day is the temperature at its highest?
6. Compare the temperature readings during the fine, fair, and rainy weather conditions.

Activity 3: "Describe the Weather Condition?"

Directions: Observe the weather elements listed in the chart below and answer the questions that follow. Record your observations in your science notebook using this format.

- Look at the pictures below.
- Describe the possible condition for each of the pictures. You can make approximate guesses for the needed details in the chart.
- Record your predictions on the chart below.

Day	Temperature	Wind Speed	Wind Direction	Cloud Formation
				
				
				
				

Illustrated by: Jotham D. Balonzo

Guide question:

- What are your bases in telling the weather condition?

**You have got your brain in gear today.
Good luck to the next level!**



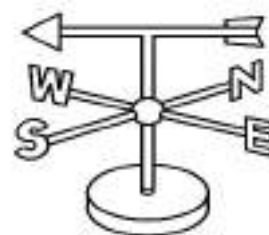
What is It

Points to Remember:

The following are the primary conditions/weather components of the atmosphere and the weather instruments used to measure them:

1. **Wind** is the movement of air parallel to Earth's surface.

- A **wind vane** is a device that tells the direction of the wind. Wind direction is the direction from which the wind is blowing (four directions: E- East, W-West, N-North, and S-South).



Illustrated by: Jotham D. Balonzo

- North wind - if the arrowhead of the wind vane faces the north direction
- East wind - if the arrowhead of the wind vane faces the east direction
- If the arrowhead points between North and East, we say, the wind is blowing northeast.

- An **anemometer** measures wind speed. The cups catch the wind, turning a dial attached to the instrument. The dial shows the wind speed. The speed of the wind may be fast or slow. Sometimes it blows gently but at other times it blows fast.



Illustrated by: Jotham D. Balonzo

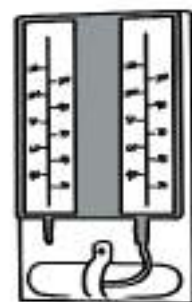
- A **windsock** tells both the wind direction and wind speed.



Illustrated by: Jotham D. Balonzo

2. **Humidity** is the amount of moisture in the air which is measured by a hygrometer.

- **Hygrometer** uses a pair of thermometers where one bulb is open to the air and the other has a bulb covered in a wet cloth. This causes evaporation on the wet bulb and loss of heat thus a drop in temperature reading. The relative humidity can then be derived from the temperature difference between the two thermometers.



Illustrated by: Jotham D. Balonzo

3. Temperature is the degree of hotness or coldness on a definite scale of air around us. Places near the equator have high temperature because they receive direct rays of the sun. The time of the day and time of the year also affect the air temperature.

- A thermometer is used to measure air temperature. A room thermometer may bear the Fahrenheit, the Celsius scale, or both. Air temperature is typically read in degrees Celsius or °C while the Fahrenheit scale is mainly used in the United States.

- Liquid-in-glass (traditional thermometer) - A **thermometer** has a **glass** tube sealed at both ends and is partly filled with a **liquid** like mercury or alcohol. As the environment becomes hotter, the liquid inside the thermometer expands causing a rise of the liquid level in the glass tube.



Illustrated by: Jotham D. Balonzo

- An **infrared thermometer (non-contact thermometer)** is a **thermometer** which measures temperature from a specific surface portion of the object at a safe distance. The thermometer will compare the heat emitted by the object with its surroundings.



Illustrated by: Jotham D. Balonzo

4. Pressure is the weight of force that is produced when something presses or pushes against something else.

- A **barometer** is a scientific instrument that is used to measure air pressure in a certain environment. The level of liquid inside it will indicate subtle pressure changes caused by weather elements.



Illustrated by: Jotham D. Balonzo

5. Precipitation is the water that falls into the ground as rain, snow etc.

- **Rain Gauge.** It measures the amount of rain that has fallen over a very specific time period.

6. Cloud formation is a visible mass of particles of condensed vapor suspended in the atmosphere of a planet.

Kinds of Clouds

- 1. Cirrus clouds** - they are like white and thin feathers. They appear high up in the sky.



- 2. Stratus clouds** - they are flat layers of clouds. They appear grayish or bluish because they are low and thick enough to hide the sun. They often turn to drizzle or light rain



- 3. Cumulus clouds** - they appear in fine and sunny weather. They appear like cotton.



- 4. Nimbus clouds** - they are called rain clouds. They appear in big heaps of heavy clouds. They bring heavy rains and thunderstorms. They make the sky dark and look heavy.



Illustrated by: Jotham D. Balonzo

Observing the weather condition will help us decide the kind of activities we will do for the day. Planning ahead can be aided by weather predictions.

- Weather charts present about weather components that determine the weather condition at any given time. Below is an example of a weather chart.

Weather Condition	Different Temperature at Various Times (in one's school yard)			
	8:00 A.M.	10:00 A.M.	12:00 N.N.	2:00 P.M.
Fine	28° C	30° C	33° C	30° C
Fair	26° C	28° C	29° C	27° C
Rainy	20° C	23° C	24° C	22° C

- Weather report is important because we can give accurate data on different weather elements. Below is an example of weather report.


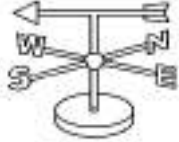



Tuguegarao Province	Fair weather condition all throughout the day. Temperature ranges from 35°C- 40°C.
Baguio City	Light to moderate northwest wind. The sky will be cloudy with brief rain showers in the afternoon or evening. Temperature ranges from 20°C- 23°C.
Tagaytay City	Occasional rain shower and thunderstorm in the afternoon with moderate to strong easterly winds. Temperature ranges from 25°C-30°C.



What's More

Activity 1: "Let's Identify Them"

A. Directions: Identify what is being asked in the statement below. Then answer the riddle by identifying the pictures shown. Write your answers in your science notebook.

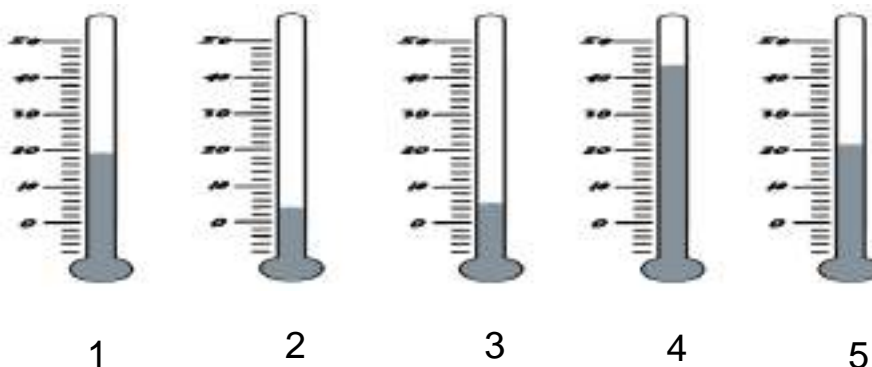
				
a. wind sock	b. wind vane	c. thermometer	d. rain gauge	e. anemometer

Illustrated by: Jotham D. Balonzo

1. I can tell the direction of the wind if it is going to east or west, north or south. What am I? _____
2. I stand in pole, can tell both the speed and direction of the wind. What am I? _____
3. If you feel warm or feel cold, tell me and I will give you the accurate readings of the temperature. Who am I? _____
4. During storm I can move fast but during fair weather I can softly move. What am I? _____
5. When the rain pours, I can measure the amount of it in a specific period of time. What am I? _____

Activity 2: "Try to Use It"

B. Directions: Read the measurement of each of the thermometer illustrated below. Write the temperature in Celsius under each thermometer. Use your science notebook as your answer sheet.



Activity 3: "Fill Me Out"

Illustrated by: Jotham D. Balonzo

D. Directions: Study this Weather Report. Describe the weather condition present in the following places/location below. Write your answer in your science notebook.

Daet, Camarines Norte	Fair weather condition all throughout the day. Temperature ranges from 30°C-35°C.
Naga City	Light to moderate northeast wind. The sky will be cloudy with brief rain showers in the afternoon or evening. Temperature ranges from 20°C-24°C.
Legazpi City	Occasional rain shower and thunderstorm in the afternoon with moderate to strong easterly winds. Temperature ranges from 25°C-30°C.

Weather Elements	Place /Location		
	Daet, Camarines Norte	Naga City	Legazpi City
Temperature			
Sky Condition			

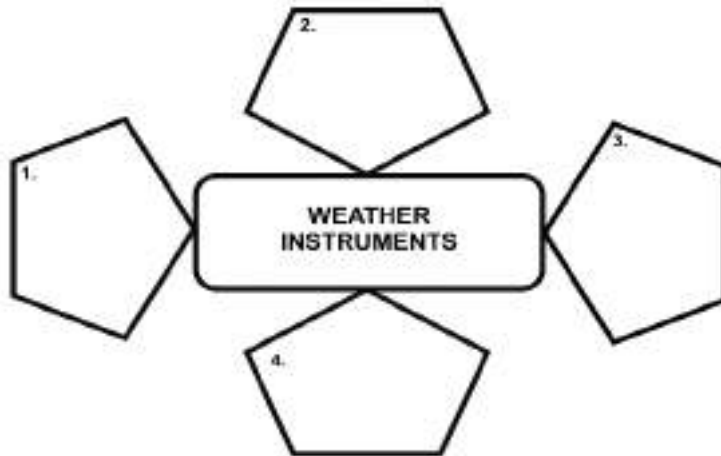


What I Have Learned

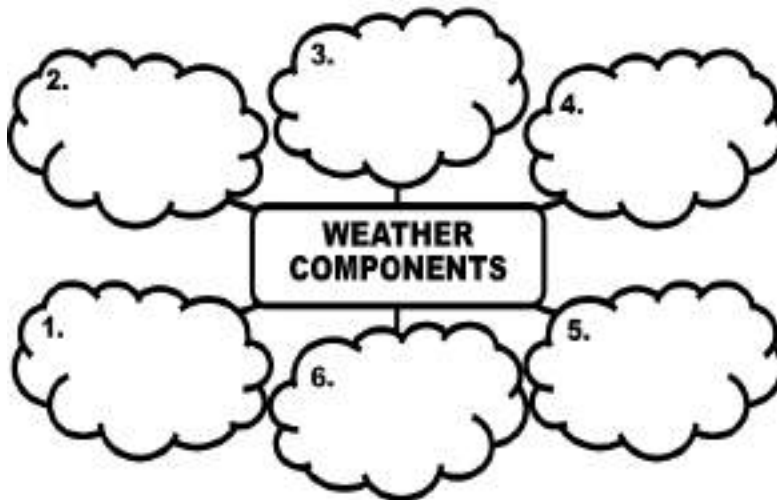
Directions: Complete the concept below by writing the needed data in the space provided. Write your answer in your science notebook.

I learned that...

A.



B.





What I Can Do

Directions: In your science notebook briefly explain your answer based on your understanding regarding this situation.

1. What do you think is the importance of knowing the different uses of weather instruments and reading of the weather charts?
2. Why is there a need for us to know and be observant of the weather conditions?
3. Typhoon Signal No. 1 is raised over the place where you live. Classes are not suspended. However, the place you live gets flooded easily when it rains. Would you go to school? Why or why not?

Wonderful you did it! Keep going.



Assessment

A. Directions: In your science notebook write the letter of the correct answer in each of the following question.

1. What instrument is used to measure the speed of the wind?
a. anemometer
b. barometer
c. thermometer
d. wind vane
2. A wind vane tells what component of weather?
a. wind speed
b. wind direction
c. wind temperature
d. wind observations
3. What weather instrument measures both wind speed and wind direction?
a. wind vane
b. wind sock
c. anemometer
d. thermometer

4. What does the daily weather forecast tells us?
- a. upcoming typhoon
 - b. temperature and place
 - c. wind speed and direction
 - d. all of the above
5. What kind of weather indicates if the cups of anemometer is moving fast?
- a. cloudy
 - b. fine
 - c. rainy
 - d. stormy
6. It gives the news about the weather?
- a. meteorology
 - b. weather man
 - c. weather forecast
 - d. both b and c
7. If the air temperature drops low at your place, what does it mean?
- a. It indicates fair weather.
 - b. It indicates normal weather.
 - c. Low temperature makes the weather cold.
 - d. High temperature makes the weather warm.
8. How can weather forecast help you?
- a. They help me plan what to buy at a discount market.
 - b. They help me decide what kind of gadget to buy next.
 - c. They help me decide what activities to do and what food to buy.
 - d. Both a and b.
9. The air temperature drops to 18°C. What should you wear?
- a. thick clothes
 - b. thin clothes
 - c. new clothes
 - d. all of the above
10. Which is true about weather condition?
- a. Weather condition help us decide the kind of activities we will do for the day.
 - b. Weather condition does not warn us to be safe from dangers during calamities.
 - c. Weather condition is not an important factor in determining different types of weather.
 - d. Weather condition is a steady sky condition and do not affect people's activities.

B. Directions: Describe the weather components recorded in the chart using the given information below. Write your answers in your science notebook.

Location	Descriptions of Weather Condition
Masbate	Cloudy sky condition with moderate northeast wind, temperature ranges from 27°C-29°C
Catanduanes	Light to moderate northeast wind, sky is cloudy with brief rain shower, temperature ranges from 20°C-24°C
Sorsogon	Occasional rain shower and thunderstorm in the morning with moderate to strong easterly winds, temperature is 20°C-33°C

Time: 9:00 A.M.	Masbate	Catanduanes	Sorsogon
Cloud formation			
Wind speed			
Wind direction			
Temperature			

Spectacular! You are great.



Additional Activities

Directions: Choose one from the given weather instruments and make your own Do It Yourself (D.I.Y.) weather instrument. Try to use it during different weather conditions.

- a. wind vane
- b. anemometer
- c. rain gauge

Excellent! You've tried really hard. You are now ready to go to the next module.



Answer Key

Activity 3

Day	Temperature	Wind Speed	Wind Direction	Cloud Formation
1	slow	slow	varies	cumulus
2	varies	slow/mod	varies	cumulus
3	fast	fast	varies	varies
4	varies	varies	varies	varies
5	varies	moderate	varies	nimbus

Guide Question:
The temperature, wind speed, wind direction, and cloud formation are the bases in giving predictions for each weather condition.

What's More

A. Let's Identify Them

- wind vane
- wind sock
- thermometer
- anemometer
- rain gauge

B. Try to Use It

- 18°C
- 4°C
- 5°C
- 44°C
- 22°C

What I Know

A.

1. b
2. e
3. c
4. a
5. d

B.

1. Meteorologist
2. Temperature
3. Thermometer
4. Anemometer
5. Wind vane

What's In

A.

1. fact
2. fact
3. fact
4. fact
5. bluff

B.

1. cirrus
2. nimbus
3. cumulus
4. cloud
5. stratus

What's New

Activity 1- Let's Identify Them

- Wind vane
- Wind sock
- Thermometer
- Anemometer
- Rain gauge

Activity 2- How To Use It

Guide Questions:

1. It is used to indicate the lines and point out the numbers inside the thermometer.
2. F- Fahrenheit, C- Celsius
3. Each long line is for 1°F temperature / 1°C temperature. The four shorter lines between each long line are for 0.2°C/0.2°F (two tenths) of a degree of temperature.
4. 30°C
5. 28°C
6. The temperature outside is higher and the temperature inside is lower.
7. the thermometer outside the house
8. the thermometer inside the house

Activity 2.1

Guide Questions:

1. rainy days- lowest, fair weather- higher, fine weather- highest
2. 12:00 noon
3. 6:00 am
4. fine weather
5. rainy
6. the time of the day affect the day's temperature

C. FILL ME OUT

Weather instruments

1. thermometer
2. wind vane
3. anemometer
4. rain gauge
5. wind sock
6. wind direction

Uses

- measures the air temperature
- tells the direction of the wind
- tells the wind speed
- measures the amount of rain that has fallen over a very specific time period
- tells both the wind speed and

D.

Weather Elements	Place /Location
Temperature	Daet 30°C-35°C
Sky	Naga City 20°C-24°C
Condition	Legazpi City 25°C-30°C
	rainy/thunderstorm

What I Have Learned

A.

1. wind vane
2. anemometer
3. rain gauge
4. wind sock

B.

1. thermometer
2. Wind
3. Humidity
4. pressure
5. cloud
6. precipitation

What's I Can Do

1. Answers may vary.
2. Answers may vary.
3. Answers may vary.

Assessment

A.

1. a
2. b
3. b
4. d
5. d

B.

6. c
7. c
8. c
9. a
10. a

Additional Activities

Time: 9:00 A.M.	Sky	wind speed	wind direction	temperature
Masbate	cloudy	moderate	northeast	27°C-33°C
Catanduanes	cloudy with brief rain	moderate	northeast	20°C-24°C
Sorsogon	occasional rain shower	Moderate to strong	easterly	20°C-33°C

Answers may vary.

Reference

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, R. R., & Zape J. (2015). *Science grade 4: Teacher's guide* (1st ed., pp. 313-326). Department of Education.

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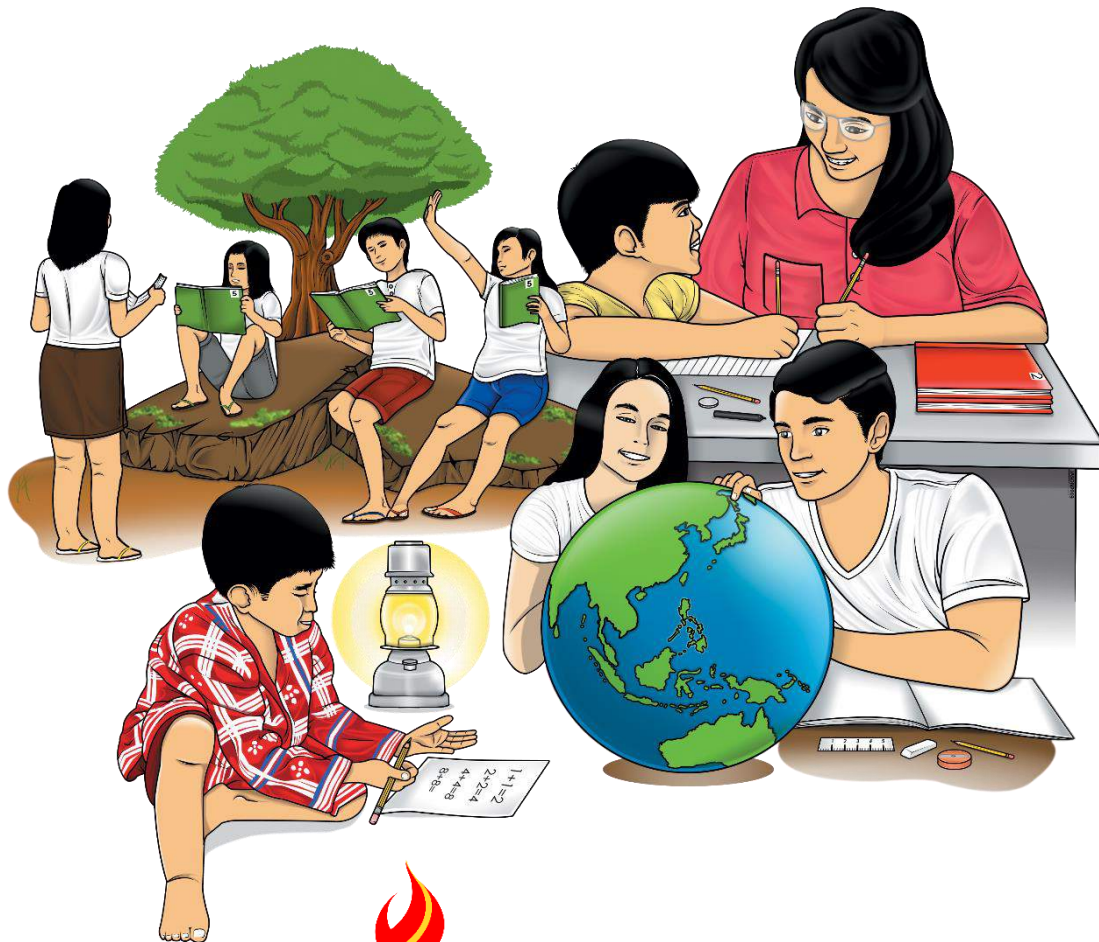
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Science

Quarter 4 – Module 5: “Safety Precautions during Different Weather Conditions”



Science – Grade 4

Alternative Delivery Mode

Quarter 4 – Module 5: “Safety Precautions during Different Weather Conditions”

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Science

Quarter 4 – Module 5: “Safety Precautions during Different Weather Conditions”

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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

This module was designed and written for you to help you understand the different safety precautions during different weather conditions, and to be familiarized with the different storm warning signals. In this module, you are going to do activities that will help you deal with different weather conditions that you are going to experience in your everyday life.

The module will focus on:

- **Lesson 1** – Making Simple Interpretations about the Weather
(S4ES-IVf-7)
- **Lesson 2** – Identifying Safety Precautions during Different Weather
(Conditions-S4ES-IVf-8)

After going through this module, you are expected to be able to:

1. identify safety precautions during sunny days, rainy days, and windy days;
2. describe the characteristics of each storm warning signal; and
3. identify safety precautions before, during, and after a typhoon.



What I Know

A. Directions: Draw a happy face (😊) if the statement is correct and a sad face (☹) if it is not. Do it in your science notebook.

- ___ 1. It is not good to burn dried leaves on windy day.
- ___ 2. On a stormy day, it is better to play in the rain.
- ___ 3. It is not good to expose yourself to too much heat of the sun.
- ___ 4. During sunny days, we should wear thin clothes to feel comfortable.
- ___ 5. It is good to eat cold foods and drinks during cold weather to keep our body warm.

B. Directions: Identify the possible storm warning signal shown in each picture.

1.



3.



2.



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You are on the right track now. Keep going.

Lesson

1

“Safety Precautions During Different Weather Conditions”

Observing weather conditions help us predict the type of weather coming ahead and decide what suited activities can be done. Weather changes from time to time. Sometimes weather can cause harm so safety precautions are needed to keep us safe.

In this module, you will be provided with various activities that will enhance your insights in identifying safety precautions during different weather conditions. You will also be introduced to the different storm warning signals that will help you to be safe during times of calamity. Good luck and have a meaningful learning!



What's In

A. Directions: Write **true** if the statement is correct and **false** if it is not. Write your answers in your science notebook.

- _____ 1. Thermometer is used to measure the air temperature.
- _____ 2. Rain gauge is used to measure the amount of rainfall that has fallen over a specific period of time.
- _____ 3. Observing the weather condition won't help us decide the kind of activities we will do for the day.
- _____ 4. Changing weather condition will help us decide what clothes to wear and what food to eat.
- _____ 5. Weather charts tell about weather components at any given time.



What's New

Note to Parent/Guardian: Guide your children in doing this activity and answer the following questions.

To the Learner:

Activity 1: “How Can You Be Safe?”

Directions: Identify what safety precautions are being illustrated in the following pictures below. Write your answer in your science notebook.

1.



2.



3.



Illustrated by: Kristal Grace C. Ilao

4.



5.



Illustrated by: Kristal Grace C. Ilao

Guide Questions:

1. What are the things/activities that you are going to do during sunny days? windy days? and rainy days?
2. What are the activities you should not do during these kinds of weather?

Activity 2: “Do You Know Me?”

Directions: Match the situations given below to the appropriate storm warning signal it describes. Fill these situations into the appropriate column on the table. Write your answer in your science notebook.

Situations:

Electrical power and communication services are disrupted.

Classes in preschool, elementary and high school levels in all public and private schools in affected areas are suspended.

People should seek shelter in strong buildings, evacuate from low-lying areas, and stay away from seacosts or riverbanks.

Very strong winds of more than 185kph is expected to affect a certain area in at least 12 hours.

Some houses of very light materials, like nipa and cogon, may be partially unroofed.

People are advised not to travel especially by sea or by air transportation

Impacts of wind may cause twigs and branches of small trees to be broken.

Widespread disruption of electrical power and communication services will happen.

Many large trees may be uprooted and most residential houses and buildings of mixed construction may be severely damaged.

Moderate to heavy damage may be expected, practically in agricultural and industrial sectors.

Massive damages may be expected in affected communities.

Maximum wind speed of more than 100kph is expected to affect a certain place in at least 12 to 18 hours.

There may be considerable damages to structures of light to medium construction.





Maximum wind speed is greater than 60 kph, but not more than 100kph is expected to affect a certain place in at least 24 hours.

Classes in preschool levels in all public and private schools in affected communities are automatically suspended.

Maximum wind speed of not more than 60 kph is expected to affect a certain place in at least 36 hours.

Classes in all levels are automatically suspended in affected communities.

Some coconut trees may be tilted or broken, few big trees may be uprooted.

 <p>Tropical Cyclone Warning Signal Number 1</p>	 <p>Tropical Cyclone Warning Signal Number 2</p>	 <p>Tropical Cyclone Warning Signal Number 3</p>	 <p>Tropical Cyclone Warning Signal Number 4</p>

Illustrated by: Kristal Grace C. Ilao

Guide Questions:

1. What are likely to happen if Storm Signal No. 1 is raised?
2. What are likely to happen if Storm Signal No. 2 is raised?
3. What are likely to happen if Storm Signal No. 3 is raised?
4. What are likely to happen if Storm Signal No. 4 is raised?

Activity 3: “Are You Prepared?”

Directions: Fill in the table with five safety precautions each on what to do **Before**, **During**, and **After** a typhoon. Write your answer in your science notebook. An example for each is done for you.

Safety Precautions	What to do?
Before	✓ Listen to Weather forecasts. ✓ ✓ ✓ ✓
During	✓ Stay indoors. ✓ ✓ ✓ ✓
After	✓ Repair all damage in the house. ✓ ✓ ✓ ✓

Great! No one can stop you from doing your



What is It

Points to Remember:

Safety Precautions during Different Weather Conditions:

A. Sunny Day

- Wear loose-fitting, light-colored clothing made from breathable fabric.
- Drink plenty of cool liquids, especially water, before you feel thirsty to decrease your risk of dehydration.
- Wear a wide-brimmed, breathable hat or use an umbrella.
- Wear sunglasses for protection against UVA and UVB rays.
- Limit your time of exposure under the heat of the sun especially between 11:00 a.m. and 4:00 p.m.
- Use sunblock lotion.

B. Windy Day

- Get indoors if possible when high winds are occurring.
- Stay away from windows.
- If you're stuck outside in high winds, seek the safest shelter possible. This could be next to a building or in an exterior below-ground stairwell.
- During extreme high winds, the safest place in an open area may be face-down in a ditch or low-lying ground, with your hands clasped behind your head.
- If you are riding on a vehicle, advise the driver to reduce speed.





C. Rainy Day

- Keep with you an umbrella to protect you from the rain and help you move around and reach a safer place.
- Purchase a nice bright colored raincoat that is full-sized and covers you from head to toe.
- Go for separate shirt and pants pieces if needed.
- If you stay in an area of torrential rainfall, invest in gumboot. Having proper footwear is essential for you to walk through pools of water and dirty areas whenever you step outside or is returning home.
- Make sure to wash your hands properly. Get a small sanitizer which can be kept in the bag.
- Wear jacket. A nice warm jacket can prevent you from getting cold.
- Have a towel that can clean the body well, absorb all the water, as well as dry quickly to be used again.

D. Stormy Day

- Prepare for wind. Secure yard items that may blow around.
- Watch for tree limbs.
- Know your flood hazard.
- Get sandbags.
- Report localized flooding.
- During storms, keep pets indoors in a sheltered area.

Meaning of Storm Signals

Typhoon Signal	Description
<p>Signal No. 1</p> 	<ul style="list-style-type: none"> - The wind speed is 60 kph and expected to affect in a certain place in at least 36 hours. - Twigs and branches of small trees will break, some banana plants may tilt or put down, some houses of very light materials will be affected. - Classes in preschool in public and private schools will be suspended.
<p>Signal No. 2</p> 	<ul style="list-style-type: none"> - The wind speed is more than 60 kph but not more than 100kph and expected in a certain place in at least 24 hours. - Some coconut trees may tilt or break, few big trees may be uprooted, large number of <i>nipa</i> and cogon houses may be partially or totally uprooted, some galvanized roofing may be peeled off. - Damages maybe light to moderate. - Class from preschool to high school in public and private schools will be suspended.
<p>Signal No. 3</p> 	<ul style="list-style-type: none"> - The wind speed is more than 100 kph up to 185 kph and expected in a place in at least 12 to 18 hours. - <i>Nipa</i> houses will be destroyed. Considerable damages to structure of light to medium construction. - Widespread disruption of electrical power and communication services. - Moderate to heavy damage in agricultural and industrial sectors. - Sea or air transportations are cancelled. - Stay away from seacoasts or river banks. - People from low-lying areas must evacuate. - Classes in all levels are suspended.
<p>Signal No. 4</p> 	<ul style="list-style-type: none"> - The wind speed is more than 185 kph and is expected in a certain area in at least 12 hours. - May large trees are uprooted. Residential and buildings of mixed construction may be severely damaged. - Electrical power disruption and communication services are disrupted. - Massive damages are expected.

What to Do Before a Typhoon

1. Listen to weather forecasts.
2. Check and fix your house for any damage or unstable parts.
3. Store adequate supply of ready-to-eat food, clean water, and clothing.
4. Prepare flashlights, batteries, candles, and kerosene lamps.
5. Have a first-aid kit with enough medical supplies.
6. Check and clean community drainage system to prevent flood.
7. Check your electric posts to prevent accidents.
8. Know the location of evacuation centers in town.
9. Secure domesticated animals in a safe place.



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What to Do During a Typhoon

1. Stay calm and stay indoors.
2. Keep updated with the latest weather report.
3. Cover your glass windows and appliances with cloth to avoid splinters when they break.
4. If you see signs of water rising, better turn off the sources of electricity. Electric-powered items should be stored in higher areas and refrain from using them during flood.
5. Stay away from flooded areas. Use raincoats and boots.
6. Follow the advice of local authorities.



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What to Do After A Typhoon

1. Monitor the movement of the typhoon.
2. Watch out for live wires.
3. Repair all damages in the house.
4. Boil water.
5. Wear protective gears such as boots.
6. Clean up and dispose things that may be breeding places of mosquitoes.



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Spectacular! You are brilliant.



What's More

Directions: Give the storm signal being described. Write your answers in your science notebook.

Activity 1: “Say My Number”

- _____ 1. The wind speed is more than 185 kph is expected in a certain area in at least 12 hours.
- _____ 2. The wind speed is more than 100 kph up to 185 kph in a place in at least 12 to 18 hours.
- _____ 3. The wind speed is 60 kph in a certain place in at least 36 hours.
- _____ 4. The wind speed is more than 60 kph but not more than 100kph in a certain place in at least 24 hours.
- _____ 5. Classes in preschool in public and private schools will be suspended.
- _____ 6. Classes in all levels are suspended.
- _____ 7. Classes from preschool, elementary to high school in public and private schools will be suspended.
- _____ 8. Electrical power disruption and communication services are disrupted.

Activity 2: “What Should We Do?”

Directions: Identify if the following safety precautions being described refers to preparations to be done **before**, **during**, or **after** a typhoon. Write your answers in your science notebook.

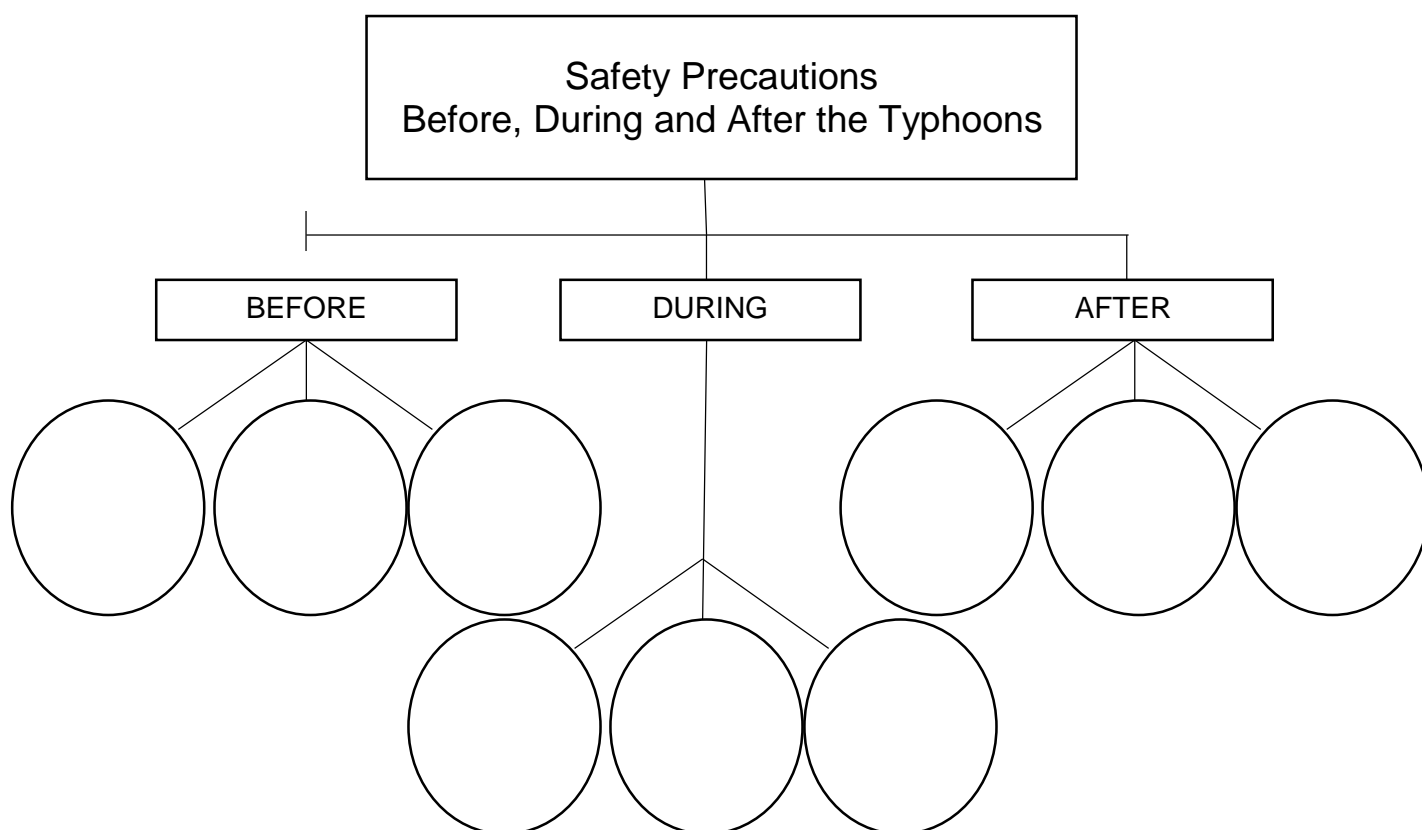
- _____ 1. Listen to weather forecasts. Tune in to radio set and television or read the newspaper.
- _____ 2. Cover your glass windows and appliances with cloth to avoid splinters when they break.
- _____ 3. If you see signs of water rising, better turn off the main sources of electricity.
- _____ 4. Store adequate supply of ready-to-eat food, clean water and clothing.
- _____ 5. Repair all damages in the house.

Great! You are doing a good

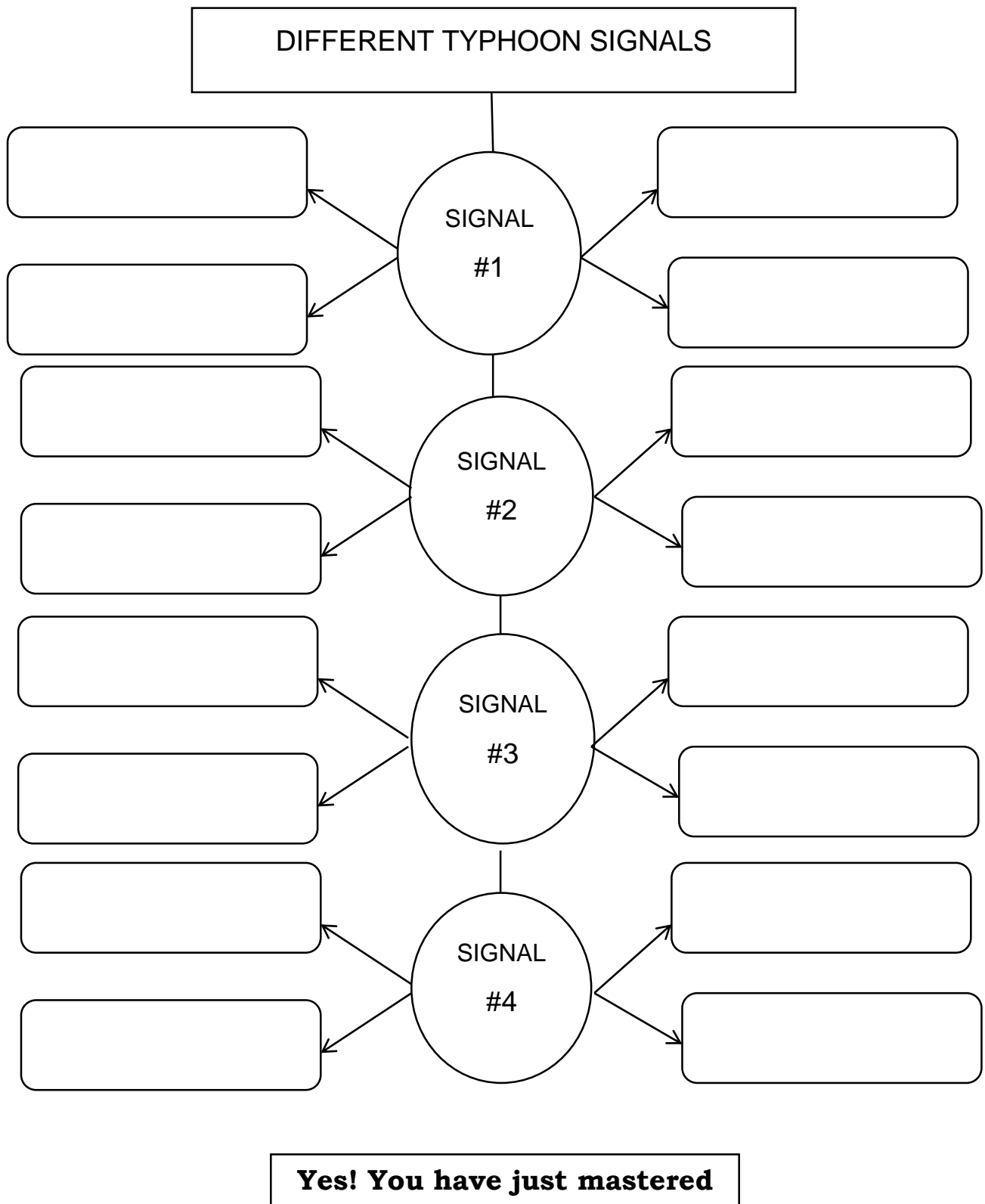


What I Have Learned

A. Directions: Complete the Graphic Organizer below by writing the safety precautions to be done before, during and after the typhoons. Do it in your science notebook.



B. Directions: Complete the Graphic Organizer below to describe each typhoon signal. Do it in your science notebook.





What I Can Do

Directions: Read and understand the situation below. Write your answer in your science notebook.

Draw a situation **during typhoon storm signal no.3** and state some safety precautions to be done during the storm.

Wonderful! You are creative. Keep



Assessment

A. Directions: Read and understand each question. Write the letter of the most appropriate answer in your science notebook.

- ____ 1. You see dark clouds in the sky and you are going to school. Which of the following should you do?
- a. Bring extra clothes.
 - b. Bring an umbrella or raincoat.
 - c. Wait for the rain to fall.
 - d. Be absent from the class.
- ____ 2. It is windy and rainy days. What should you do?
- a. Wear new clothes.
 - b. Wear thin clothes.
 - c. Use sandals or slippers.
 - d. Bring umbrella or raincoat.
- ____ 3. Your father is a farmer. When must he decide to plant rice?
- | | |
|-------------------|-----------------------------------|
| a. on any month | c. on a sunny day |
| b. on a rainy-day | d. on either a sunny or rainy day |

- _____ 4. What does the daily weather forecast tell you?
- a. place
 - b. temperature
 - c. kind of weather
 - d. all of the above
- _____ 5. Which one describes stormy weather?
- a. Birds are flying.
 - b. Smoke goes straight up.
 - c. Farmers are busy planting.
 - d. There are heavy rains and strong winds.
- _____ 6. Which of these situations show Typhoon Signal No. 2?
- a. Classes in all levels are not suspended.
 - b. Classes in all levels are automatically suspended in affected communities.
 - c. Classes in preschool levels in all public and private schools in affected communities are automatically suspended.
 - d. Classes in preschool, elementary and high school levels in all public and private schools in the affected areas are automatically suspended.
- _____ 7. Typhoon Signal No. 1 is raised over the place where you live. Classes are not suspended. However, the place where you live gets flooded easily when it rains. Would you go to school? Why or why not?
- a. I will go to school and bring umbrella instead.
 - b. I will not go to school but just play in the rain.
 - c. I will still go to school because my teacher might be angry.
 - d. I will not go to school because I might be caught in the flood.
- _____ 8. Mang Jose prepared his fishing net. He observed that the sky is overcast. What is the best thing that he should do?
- a. Hurry and go on fishing.
 - b. Keep the nets and do not go fishing.
 - c. Call other fishermen to go on fishing.
 - d. Stay outside and look for the coming of typhoon.
- _____ 9. The air temperature drops to 18°C. What should you wear?
- a. old clothes
 - b. thin clothes
 - c. new clothes
 - d. thick clothes

- _____ 10. You are sweeping the dried leaves in the backyard. You have noticed that the wind is blowing hard. Will you burn the dried leaves? Why or why not?
- a. I will throw the leaves into the river.
 - b. I will burn the dried leaves so that the backyard will be clean.
 - c. I will not burn the dried leaves because it may cause a big fire.
 - d. None of these.

B. Directions: Write **true** if the statement is correct and **false** if it is not. Write your answers in your science notebook.

- _____ 1. The weather affects the activities of people.
- _____ 2. It is always wise to tune in to radio or TV for weather updates.
- _____ 3. Meteorologists rely only on information about cloud formation and wind direction to forecast the day's weather.
- _____ 4. One has to store canned food and drinking water during the typhoon.
- _____ 5. Knowledge about the day's weather helps us decide on a planned activity.

Spectacular! You are great.



Additional Activities

Directions: Make a poster showing safety precautions during different weather conditions. (stormy days, sunny days, rainy days and windy days.) Do it in your science notebook.

Congratulations! Next module is now waiting for

2. Some coconut trees may be tilted or broken, few big trees may be uprooted. Some houses of very light materials, like nipa and cogon, may be partially unroofed. Classes in preschool, elementary and high school levels in all public and private schools in affected areas are suspended.

3. There may be considerable damages to structures of light to medium construction. Widespread disruption of electrical power and communication services will happen. People should seek shelter in strong buildings, evacuate from low-lying areas, and stay away from sea coasts or riverbanks. Moderate to heavy damage may be expected, practically in agricultural and industrial sectors. People are advised not to travel especially by sea or by air transportation. Classes in all levels are automatically suspended in affected communities.

4. Many large trees may be uprooted and most residential houses and buildings of mixed construction may be severely damaged. Electrical power and communication services are disrupted. Massive damages may be expected in affected communities.

Activity 3 "Are You Prepared?"

Safety precautions	What to do?
Before	<ul style="list-style-type: none"> ✓ Listen to Weather Forecasts. ✓ Check and fix your house for any damage or unstable parts. ✓ Store adequate supply of ready-to-eat food, clean water, and clothing. ✓ Prepare flashlights, batteries, candles, and kerosene lamps. ✓ Have a first-aid kit with enough medical supplies. ✓ Secure domesticated animals in a safe place.
During	<ul style="list-style-type: none"> ✓ Stay indoors. ✓ Keep calm. ✓ Keep updated with the latest weather report. ✓ Cover your glass windows and appliances with cloth to avoid splinters when they break. ✓ If you see signs of water raining, better turn off the sources of electricity. ✓ Stay away from flooded areas. ✓ Use raincoats and boots. ✓ Repair all damage in the house. ✓ Watch out for live wires. ✓ Monitor the movement of the typhoon. ✓ Boil water. ✓ Wear protective gears such as boots. ✓ Clean up and dispose things that may be breeding places of mosquitoes.
After	

A "What's More"

A. "Say My Number"

1. Signal no. 3
2. Signal no. 1
3. Signal no. 4
4. Signal no. 1

B. "What Should We Do?"

1. after
2. before
3. during
4. during
5. during

What I Have Learned

A. Answers may vary.

B. Answer may vary.

What I Can Do

Answers may vary.

Assessment

1. a
2. d
3. b
4. a
5. d

B.

1. True
2. True
3. False
4. True
5. True

Additional Activities

Answers may vary.

Reference

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, R. R., & Zape J. (2015). *Science grade 4: Teacher's guide* (1st ed., pp. 327-334). Department of Education.

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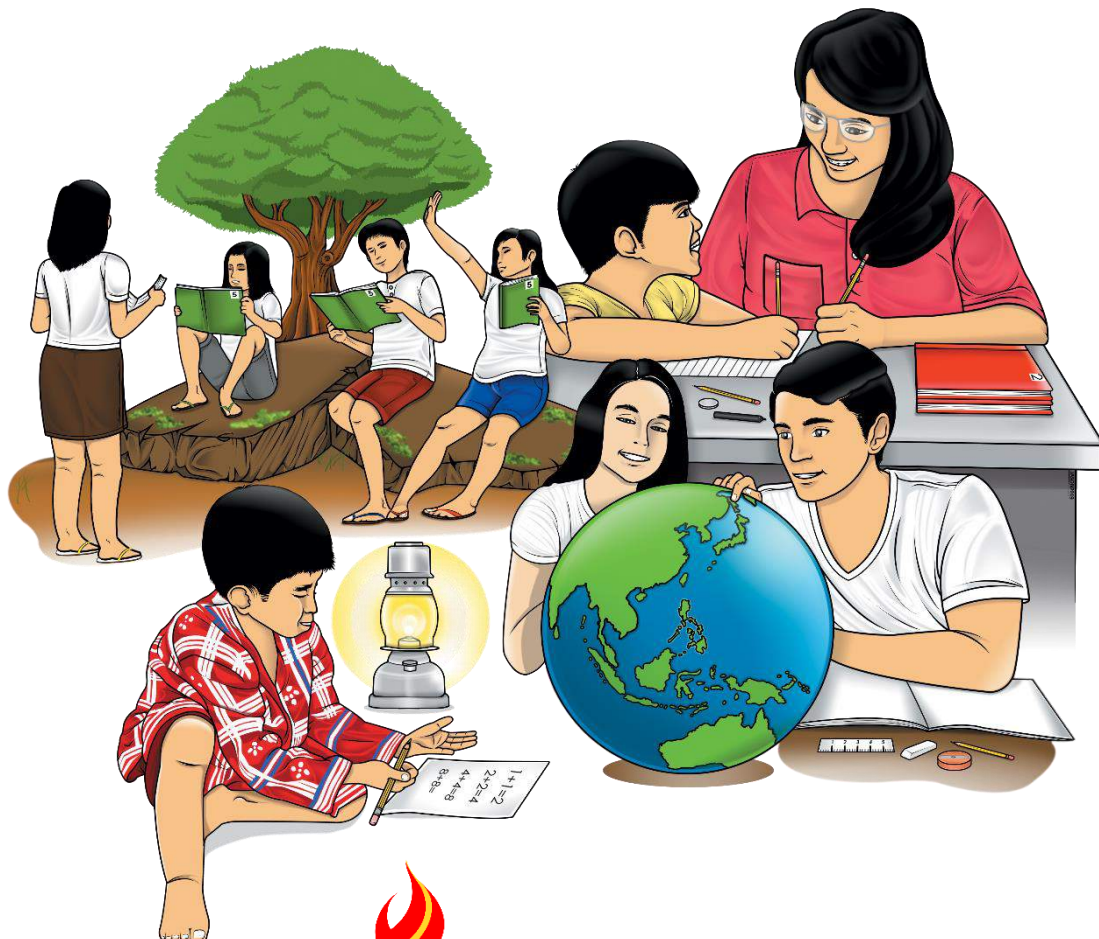
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Science

Quarter 4 – Module 6: Light and Shadow



Science – Grade 4
Alternative Delivery Mode
Quarter 4 – Module 6: Light and Shadow
First Edition, 2020

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Science

Quarter 4 – Module 6:

Light and Shadow

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.

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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

This module contains lessons and activities that will enable you to empower your scientific mind in describing the position and length of shadows in different times of the day and explain why the position and length of the shadow changes. Enjoy, learn, and discover.

The module will focus on:

- **Lesson 1:** Describe the changes in the position and length of shadows in the surroundings as the position of the sun changes (S4ES-IVh-9)

After going through this module, you are expected to be able to:

1. describe the changes in position of shadows as the position of the sun changes; and
2. describe the length of the shadows as the position of the sun changes.



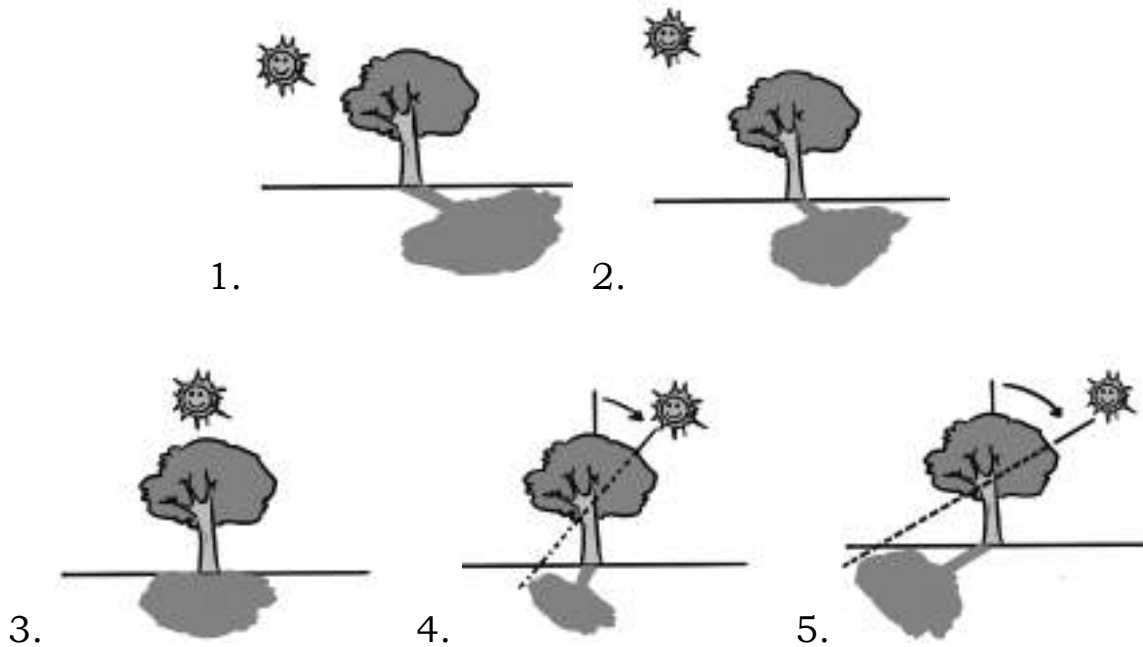
What I Know

A. Directions: Fill in the blanks with the correct word which will make each statement correct. Choose your answer from the box below. Do it in your science notebook.

sun	things	temperature	shadow	opaque
position	slanted	above	angle	weather

1. The_____ is the main source of heat and light.
2. Sunlight brightens the earth and helps us see the _____ in our surroundings.
3. The rising of the sun in the east and setting on the west also affects the _____ in every direction of the earth.
4. The change in temperature in every part of the earth changes the _____.
5. _____ is a dark area formed when straight light rays are blocked by opaque objects.
6. Shadows are formed when light strikes on _____objects.
7. Shadows “move” or change _____ during the day because of the position of the sun.
8. The length of the shadows varies during the day. In the morning, the light rays are _____, so the shadow is long.
9. At noon, when the sun is directly _____ the horizon, there is no visible shadow.
- 10.The changes in position and length of shadow depend on the _____ at which the sunlight strikes the object to the ground.

B. Directions: Choose the statement that best describe the position and length of shadows of the sun in each picture. Write only the letter. Do it in your science notebook.



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- a. During noon time, you can see the shadow under the tree.
- b. In the morning, the sun is low in the horizon and longer shadow is formed.
- c. When the sun rises or sets in the afternoon, its light rays are slanted as it hits the ground resulting to a longer shadow.
- d. As the sun moves up or nearly above the horizon, the shadow becomes shorter.
- e. The sunlight strikes the ground at nearly right angle so shadow
- f. becomes shorter.

Great answers! These words are related to our lesson. Be ready to show your excellent skills.

Lesson

1

Light and Shadow

As we watch the sun rises in the morning and sets in the evening, we always observe it as it moves along the horizon and creates shadows as it hits objects on the ground.

Have you tried standing in a wide clear field during fine summer day? What have you observed in your shadow? Do you know what shadow is? Why do shadows change in position and length in different times of the day in our surroundings? We are going to find out why in this module.



What's In

A. Directions: The following are safety precautions when there is a typhoon. Identify whether it is to be done **Before**, **During** or **After** a typhoon. Write the answers in your science notebook.

- _____ 1. Watch out for live wires.
- _____ 2. Stay calm and stay indoors.
- _____ 3. Repair all damages in the house.
- _____ 4. Monitor the movement of the typhoon.
- _____ 5. Know the location of evacuation centers in town.
- _____ 6. Check and clean community drainage system to prevent flood.

- _____ 7. Prepare flashlights, batteries, candles, and kerosene lamps.
- _____ 8. Store adequate supply of ready-to-eat food, clean water, and clothing.
- _____ 9. Clean up and dispose things that may be breeding places of mosquitoes.
- _____ 10. Electric-powered items should be stored in higher areas and refrain from using them during flood.



What's New

Note to Parent/Guardian: Guide your children in doing this activity. Remind them of the following precautionary measures. Be careful in handling the materials while performing the activity.

To the Learner:

Activity 1: “How Are Shadows Formed?”

Directions: Perform this activity in a dark room. Be guided by the instructions on **What to do** part.

What you need:

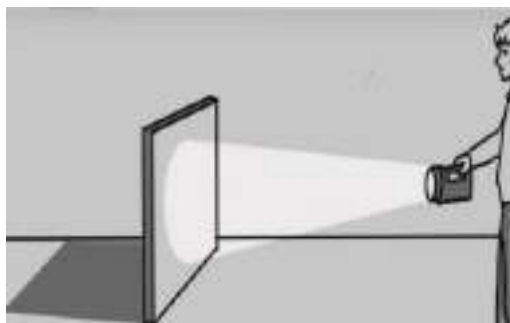
- dark room
- flashlight with new batteries
- a piece of cardboard (8 cm x 10 cm)
- a piece of thin clear plastic sheet (8 cm x 10 cm)

What to do:

1. Close all the windows and door of your room.
2. Hold the cardboard 30 cm away from the wall of your room.

3. Assign a sister/brother or any family member to hold the flashlight 30 cm away from the cardboard.

4. Switch on the flashlight and focus directly on the center of the cardboard.



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5. Observe what happens to the light and write your observations in your science notebook.

6. Repeat steps 2 and 5 with a piece of clear plastic sheet. Observe what happens.

7. Write your observations in your science notebook.

8. Repeat steps 2 and 5 outside the room and observe what happens?

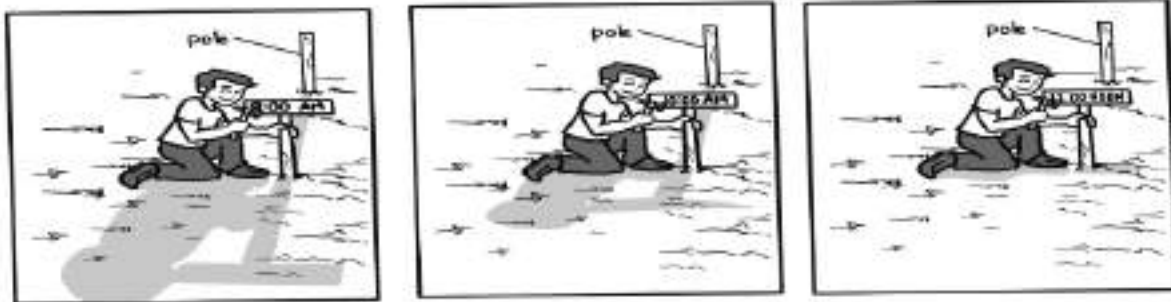
9. Write your observation in your notebook.

Guide Questions:

1. What do you observe on the wall when light strikes an object in the dark room? Describe what you observed?
2. Did you get the same result outside the room? Why?
3. What did you observe when light strikes a clear plastic sheet? What was formed and why?
4. What are shadows?
5. How shadows are formed?
6. Do all objects form shadows? Why?

Activity 2: “Why Do Shadows Change in Position and Length?”

Directions: Describe the three pictures below and answer the following guide questions in your notebook.



Illustrated by: Kristal Grace C. Ilao

Copy the table in your science notebook and record your answer.

Time	Descriptions
8:00 A.M.	
10:00 A.M.	
12:00 N.N.	

Guide Questions:

1. Describe the shadow of the pole at 8:00 A.M., 10:00 A.M., and 12:00 noon.
2. At what time is the shadow of the pole the longest? Why is this so?
3. At what time is the shadow shortest? Why?
4. What have you noticed about its position at different times of the day? Did it stay in one place throughout the day?
5. How do you relate the changes in position and length of shadows with that of the changes in position of the sun?

Very well done! You are doing great.



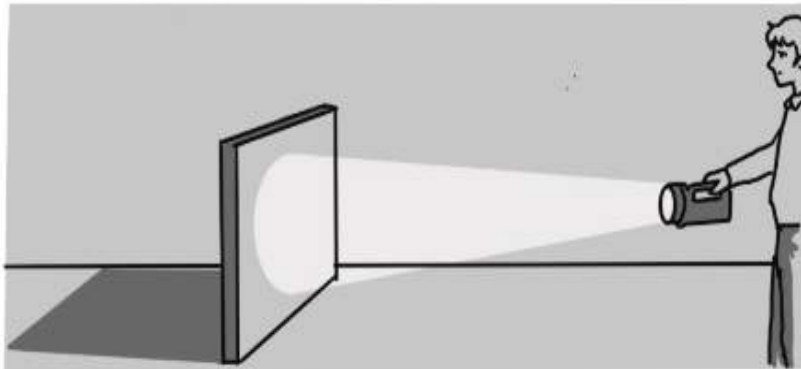
What is It

Points to Remember:

The sun is the main source of heat and light. Almost all living things rely on the steady heat and light from the sun. Sunlight brightens the earth and helps us see the things in our surroundings.

On the other hand, the rising of the sun in the east and setting on the west also affects the temperature in every direction of the earth causing the changes in the weather.

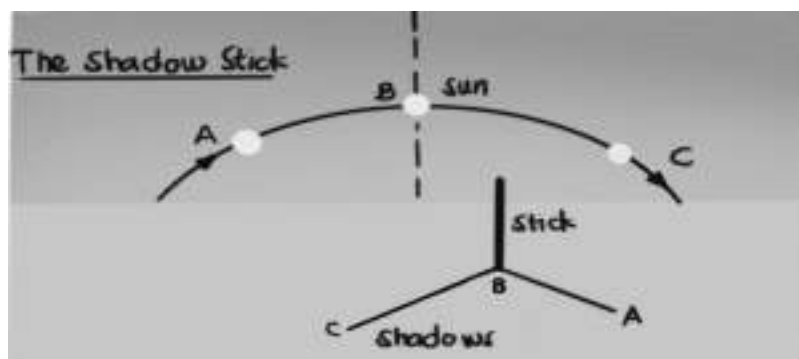
Shadow is a dark area formed when straight light rays are blocked by opaque objects.



Illustrated by: Kristal Grace C. Ilao

*Shadows are formed when light strikes on **opaque** objects.*

Shadows “move” or change position during the day because of the position of the sun.



Illustrated by: Kristal Grace C. Ilao

The length of the shadows varies during the day. In the morning, the light rays from the Sun (point A) makes an angle with the object thus creating a long shadow (shadow A). When the sun is directly above the horizon at noon (point B), the light rays are in line with the object, thus it will not cast any visible shadow (shadow B). In the afternoon at point C, the light rays from the sun, makes an angle with the object thus creating a long shadow (shadow C). **Therefore, the position and the length of the created shadow would depend on the angle at which the sunlight strikes the object to the ground.**



What's More

A. Directions: Write **T** if the statement is true and **F** if it is not. Write your answers in your science notebook.

- _____ 1. The sun is the main source of heat and light.
- _____ 2. Plants, animals, and humans can survive even without the sun.
- _____ 3. The effect of the sun's heat and light to the environment causes the changes in temperature.
- _____ 4. Without the sun the earth will be dark, cold, and lifeless.
- _____ 5. You can have the shortest shadow at 8:00 am in the morning.
- _____ 6. An object cast a longer shadow when light rays are slanted.
- _____ 7. Opaque objects form shadows because they reflect the light.

- _____ 8. Shadows are formed when light rays hit an opaque object.
- _____ 9. At noon, when the sun is directly above the horizon, the shadow is very long.
- _____ 10. The changes in the position and length of shadow depend on the angle at which the sunlight strikes the object to the ground.

B. Directions: Complete the statement below by writing what is needed in the space provided. Write your answers in your science notebook.

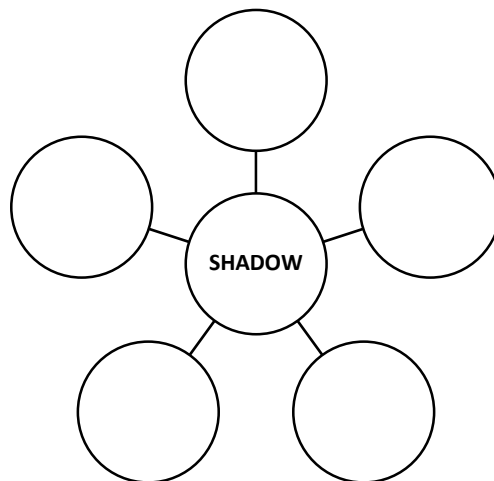
1. When the light strikes on _____ objects, shadows are formed.
2. In the morning, the light rays are _____ , so longer shadows are formed.
3. When the sun rays are directly above the horizon, no _____ are formed.
4. The changes in the position and length of shadows in the surroundings depend on the _____ at which the sunlight strikes the object to the ground.
5. Shadows “move” or change position during the day because of the _____ of the sun.

<p>You’ve got it. Just keep moving because you are gearing towards the finish line.</p>
--



What I Have Learned

A. Directions: Complete the Graphic Organizer by writing some facts about shadow. Write your answers inside each blank circle. Do this in your science notebook.



Wow! You did it!



What I Can Do

Directions: Do this activity outside. Describe the length of your shadow at different times of the day for three days. Write your answer in your science notebook.

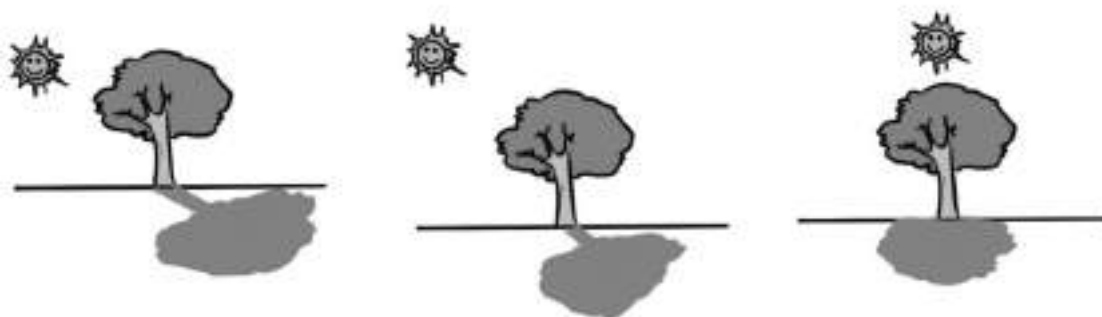
Time of the Day	Day 1	Day 2	Day 3
7:00 A.M.			
12:00 N.N.			
4:00 P.M.			

Awesome! Keep up the good work.



Assessment

A. Directions: Look at the picture below. In five sentences, describe the length and the position of the sun as it moves along the horizon throughout the day. Note of the changes of the shadow created by the sunlight and the object. Write your answers in your science notebook.



Illustrated by: Kristal Grace C. Ilao

1. _____

2. _____

3. _____

4. _____

5. _____

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

- _____ 1. At which time of the day can you have the shortest shadow?
- a. 9:00 A.M.
 - b. 10:00 A.M.
 - c. 2:00 P.M.
 - d. 12:00 N.N.
- _____ 2. Why do opaque objects form shadows?
- a. Because they reflect the light.
 - b. Because they bend the light that hit them.
 - c. Because they cover the light that hits them.
 - d. Because they absorb the light that hit them.
- _____ 3. When does an object cast a longer shadow?
- a. When light rays are on top.
 - b. When light rays are slanted.
 - c. When light rays are trapped.
 - d. When light rays are sideways.
- _____ 4. When are shadows formed?
- a. When light rays hit hard objects.
 - b. When light rays hit opaque objects.
 - c. When light rays hit translucent objects.
 - d. When light rays hit the transparent objects.
- _____ 5. At what time of the day would the shadow become shorter?
- a. at noontime
 - b. in the evening
 - c. in the morning
 - d. in the afternoon

C. Direction: In your science notebook answer the following questions below.

1. When do you usually see the longest shadow?
2. Why is the shadow short at 12:00 noon?
3. What do you observe in the shadow in the morning and at noon?
4. Which was the shortest and which was the longest?
5. Describe the position and length of your shadow during the day?

Spectacular! You are great.



Additional Activities

Direction: Make an investigation based on the given statement below.

Have you seen a puppet show? Puppeteers use shadow figures and dialogue to tell a story. If you were one of them and you would like to present a shadow puppet show about a tree that grows larger over time. However, you have only one available paper tree cut out. Investigate how the size of the tree's shadow can be changed in terms of its position from the source of light.

Wonderful! You certainly did well in this module.



Answer Key

What I Know

A.
position
shadow
length
opaque
sun
flashlight
light
angle
horizon
rays

B.

1. b

2. d

3. a

4. e

5. c

What's In

Sunny days

- Do not expose yourself to too much heat of the sun.
- Do not wear thick clothes.

Windy days

- Do not burn dried leaves.
- Do not walk under the trees.

- Do not wear thin clothes.

Rainy days

- Do not play in the rain.
- Do not wade in dirty water.

- Do not eat cold foods.

What's New

Activity 1 "How Shadows are Formed?"

Guide Questions:

1. It blocked the light. When the light hits the objects in the dark room, it formed a shadow.
2. No, because there is light outside so no dark area was formed on the wall.
3. The light directly passed the clear plastic sheet and no shadow was formed.
4. Shadows are dark areas formed when straight light rays blocked by opaque objects.
5. Shadows are formed when light rays are blocked by opaque objects.
6. No, only opaque objects form shadows.

Activity 2 “Why Do Shadows Change in Position and Length?”**Guide Questions:**

1. 8:00am the shadow at the pole is the longest, 10:00 am, the shadow at the pole is shorter, and at 12:00 noon the shadow is the shortest.
2. At 8:00 am because the light rays are slanted, so the shadow is longest.
3. At 12:00 noon because the sun is directly above the horizon, so there is no visible shadow.
4. The position of the shadow varies at different times of the day and did not stay in one place throughout the day.
5. Shadows move or change position during the day because of the position of the sun.

What's More

1. T
2. F
3. T
4. T
5. F
6. T
7. F
8. T
9. F
10. T

What I Have Learned

- slanted
- shadow
- angle

What I Can Do

Answers may vary.

Assessment

A. 1-5: Answers may vary

B.

1. c 2. a 3. a 4. a 5. c

C.

1. in the morning/afternoon
2. because the sun is directly above the horizon
3. in the morning, the shadow is longer; at noon no shadow
4. shadow at noon; shadow in the morning
5. The changes in the position and length of shadows in the surroundings depend on the angle at which the sunlight strikes the object.

Additional Activities

Answers may vary.

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- 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, R. R., & Zape, J. (2015). *Science grade 4: Teacher's guide* (1st ed., pp. 343-347). Department of Education.

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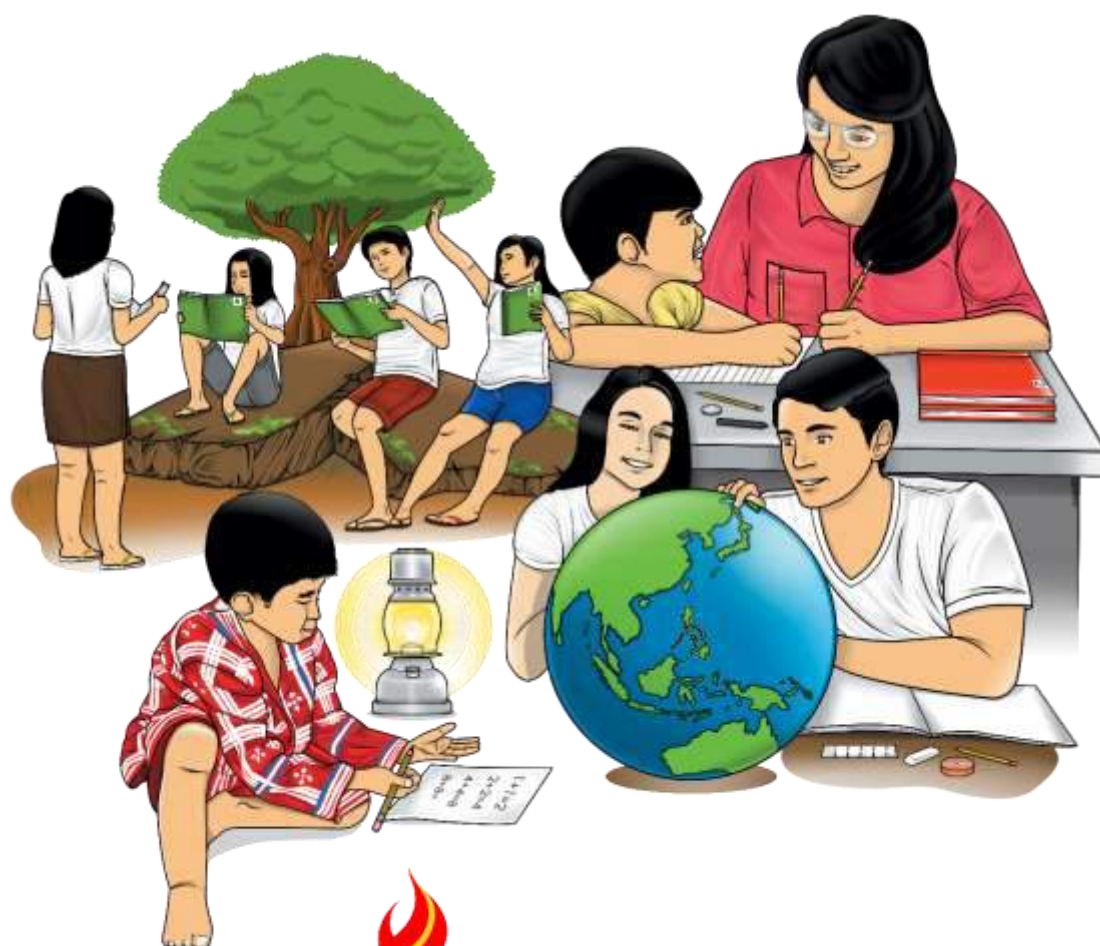
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Science

Quarter 4 – Module 7: “Effects of the Sun’s Heat and Light”



Science – Grade 4
Alternative Delivery Mode
Quarter 4 – Module 7: “Effects of the Sun’s Heat and Light”
First Edition, 2020

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Science

Quarter 4 – Module 7: “Effects of the Sun’s Heat and Light”

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

In this module, you will be provided with lots of fun and exciting activities for you to learn more about the sun's importance and its effects to all living things and the environment.

Series of activities will help you in discovering and enabling your mind to apply essential skills learned in this module. This is your last module to take, good luck and have a meaningful learning.

The module will focus on:

Lesson 1 – Effects of the Sun's Heat and Light (S4ES-IVh-9)

After going through this module, you are expected to be able to:

1. describe the beneficial and harmful effects of the sun's heat and light on living things;
2. identify safety precautions on the effects of the sun's heat and light;
3. explain how the sun's heat and light affects living things; and
4. appreciate the importance of sun's heat and light on living things.



What I Know

A. Directions: Draw a sun (☀) if the statement describes what is shown in the picture and draw a moon (☾) if it does not. Do it in your science notebook.



- Kids are reading under the moonlight



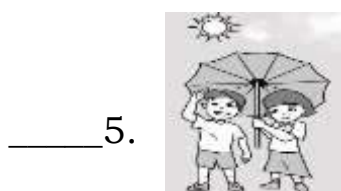
- Wearing sunglasses, hats and long sleeves in the beach when the sun is too hot



- A farmer working in the field dressed in trousers and long sleeves.



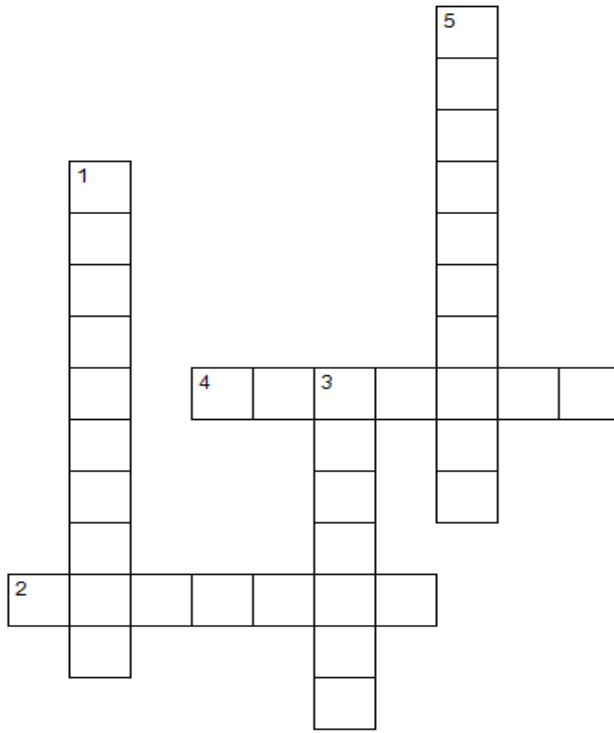
- Sleeping on the beach all day



- Using umbrella on sunny days

Illustrated by: Kristal Grace C. Ilao

B. Directions: Complete the crossword by filling in a word that fits each clue. Do it your science notebook.



Across:

- 2. causing or likely to cause harm
- 4. activity of catching fish

Down:

- 1. favorable or advantageous
- 3. redenning of skin due to too much sun exposure
- 5. to gather crops

C. Directions: Write **good** if the statement shows beneficial effects of the sun and **bad** if it is not. Write your answers in your science notebook.

- _____ 1. Drying of fishes and crops.
- _____ 2. Looking directly at the sun.
- _____ 3. Washing and drying of clothes.
- _____ 4. Using umbrella on a hot sunny day.
- _____ 5. Going to the beach without applying sunblock lotion.

Lesson

1

“Effects of the Sun’s Heat and Light”

The sun is the main source of heat and light that’s why it has a great impact on the kind of activities we usually do every day. It is just one of the many benefits that the sun can provide for us. However, the sun’s heat and light have both good and bad effects on us, so we must be extra careful in everything we do.

May the activities that follow help you in understanding the importance and effects of the sun on us.



What’s In

Directions: Fill in the blanks with the correct answer. Write **true** if the statement is correct and **false** if it is not. Write your answers in your science notebook.

- _____ 1. You can have the shortest shadow at noontime.
- _____ 2. The shadow in the morning is longest than at noon.
- _____ 3. Your shadow changes as the sun changes its position.
- _____ 4. The length of the shadow does not vary during the day.
- _____ 5. Shadows are formed when light strikes on transparent objects.






What's New






Note to Parent/Guardian: Guide your children in doing this activity and answer the following questions.

To the Learner:

Activity 1: “How Beneficial is the Sun’s Heat and Light?”

Directions: Study the images and describe how the sun can be beneficial to living things. Write your answers in your science notebook.

Pictures	Benefits
1. 	
2. 	
3.  <small>Illustrated by: Kristal Grace C. Ilao</small>	




Pictures	Benefits
<p>4.</p> 	
<p>5.</p> 	
<p>6.</p> 	
<p>7.</p> 	
<p>8.</p>  <p>Illustrated by: Kristal Grace C. Ilao</p>	

Guide Questions:

1. What human activities require sun's heat and light?
2. Describe the sun's beneficial effects on humans, plants, and animals.

Activity 2: “How Harmful is the Sun’s Heat and Light on Living Things?”

Directions: Study the images and **describe the harmful effects** of the sun on living things. Write your answers in your science notebook.

Pictures	Harmful Effects
1. 	
2. 	
3.  <p>Illustrated by: Kristal Grace C. Ilao</p>	

Guide Questions:

1. How would you describe the harmful effects of the sun’s heat and light on living things?
2. Why should you not look directly at the sun?

Activity 3: “Am I Protected?”

Directions: Identify what safety precautions are being described in the following images. Use your science notebook as your answer sheet.

1.



2.



3.



Illustrated by: Kristal Grace C. Ilao

Guide Questions:

1. What should you wear to protect your body from the intense heat of the sun?
2. What should you wear to protect your eyes from the glare of the sun when going on a hike or swimming?
3. What should you apply on your skin to protect you from sunburn?
4. What should you wear if you work on a farm to protect yourself from the intense heat of the sun?
5. What should you do to protect yourself from the harmful effects of the sun?

Activity 4: “Can You Explain This?”

Directions: Explain how the sun affects living things in the following images. Write your answers in your science notebook.

1.



2.



3.



Illustrated by: Kristal Grace C. Ilao



What is It

Points to remember on the effects of sun's heat and light:

Effects of the Sun's Heat

1. Plants can produce their own food by utilizing the heat of the sun.
2. Animals can survive with the aid of sunlight.
3. Recreational activities such as outings and picnics can be enjoyed during summer when the sun's heat is high in the sky.
4. Both farmers and fishermen benefit from the sun's heat and light through drying of crops and fishes.
5. Humans can do lots of activities such as drying of clothes, harvesting, drying of crops, fishing, and drying of fish/meat.

Beneficial Effects of Ultra Violet (UV) Rays of the Sun

1. Ultraviolet rays (UV) help some skin conditions such as psoriasis by slowing the rapid rate of skin growth and shedding.
2. Sunlight stimulates the pineal gland in the brain, causing it to produce chemicals known as "tryptamines," which improve our moods.
3. It helps some animals' vision. Some animals (including birds, bees, and reptiles) can see into the near UV light to locate many ripe fruits, flowers, and seeds that stand out more strongly from the background. The fruits, flowers and seeds often appear quite different from how humans can see them.
4. It aids in the navigation of some insects.
5. Plants can make their own food through the presence of sunlight.
6. It is useful for disinfection and sterilization because it can kill or deactivate microorganisms such as viruses and bacteria.

Harmful Effects of UV Rays of the Sun

1. It causes sunburn and skin cancer.
 - Kinds of Skin Cancer:
 - a. *Basal carcinoma*
 - b. *Squamous cell carcinoma*
 - c. *Melanoma*
2. Visual impairment-caused by directly looking at the sun
3. Heat stroke is caused by excessive exposure to sunlight.
4. Plants wilt and dry out when overexposed to sunlight.
5. Soil will become very dry and may crack, causing plants to die, making farming impossible.
6. Exposure to extreme heat can cause animals to become ill and eventually die.
7. Too much exposure to UV can harm the immune system.
8. Premature aging – UV accelerates skin aging by destroying the collagen and connective tissues beneath the top layer of skin, causing wrinkles, brown “liver” spots and loss of skin elasticity.

Safety Precautions on the Effects of the Sun’s Heat and Light

1. Wear a cap or wide-brimmed hat during sunny days.
2. Carry along an umbrella to protect you from the intense heat of the sun.
3. Wear sunglasses when playing on the beach while the sun is too hot.
4. When you go swimming, apply sunscreen or lotion to protect your skin from sunburn.
5. Wear clothing that protects the skin on your hands and feet when working under the heat of the sun.
6. Seek shade and avoid direct sunlight during peak hours.



What's More

A. Directions: Analyze the effect of the sun on the situations below by choosing the letter of the correct answer inside the box. Do it in your science notebook.

- a. carabao in distress
- b. successful human activities
- c. plants would wither and die
- d. dried, cracked and hardened soil
- e. protected skin from the sun's harmful rays

1. drying of clothes, fishes, and crops
2. plants left outside without water for two weeks
3. applying sunblock lotion when going on a picnic
4. carabao grazing in the grassland left under the sun the whole day
5. intense heat is received on the earth's surface with no rainfall at all

B. Directions: Put a check mark (✓) on the blank before the number if the sentence shows **GOOD** practice and cross mark (x) if it does not. Write your answer in your science notebook.

- _____ 1. Lying on beaches all day.
- _____ 2. Looking at the sun directly.
- _____ 3. Using an umbrella on sunny days.
- _____ 4. Playing under the sun at noon time.
- _____ 5. Staying under the sun the whole day.
- _____ 6. Exposing eyes to the bright/glaring light.
- _____ 7. Wearing a wide-brimmed hat on sunny days.
- _____ 8. Wearing sunglasses in beaches while the sun is too hot.
- _____ 9. Wearing long sleeves and trousers when working in the farm.
- _____ 10. Applying sun block lotion all over the skin when swimming in beaches or pools.



What I Have Learned

Directions: Using the words in the box, make a meaningful sentence/s that will show what you have learned in this module. Do it in your science notebook.

harmful	plants	safety
beneficial	animals	activities

I learned that:



What I Can Do

Directions: Answer the following questions briefly. Write your answers in your science notebook.

- Some areas of our country are experiencing drought, resulting in a water shortage. What should we do to ensure the availability of water?
- Mang Pablo has three working cows in his farm. How will he protect his animals from the intense heat of the sun?
- Too much exposure to sunlight can be harmful. If you are chosen to join the YES-O Camp to be held near the beach, what preparations will you do? Why?



Assessment

A. Directions: Read each question carefully. Choose the letter of the correct answer. Do it in your science notebook.

1. Why do farmers use their wide-brimmed hats when they are working in the farm?
 - a. To protect them from strong winds
 - b. To protect them from head injuries
 - c. To protect their head from insect bites
 - d. To protect them from the intense heat and light of the sun
2. Monette forgot to bring her plants outside for a week. What would likely happen to the plants?
 - a. The plants grew robustly.
 - b. The plants have bigger roots.
 - c. The plants have bigger stems.
 - d. The plants have yellowish leaves.
3. One Saturday, you went swimming with your friend in the nearby river. You noticed that your skin was turning reddish. What was the harmful effect of the sun's heat on your skin?
 - a. boil
 - b. cancer
 - c. insect bite
 - d. sunburn
4. What would happen if your eyes were exposed to the sun's glare?
 - a. Eyes would bulge.
 - b. Eyes will get clear vision.
 - c. Vision would be impaired.
 - d. Eyes would become cross-eyed.
5. In what way is the sun's heat beneficial to humans?
 - a. Mother can dry her laundry.
 - b. Farmers can harvest and dry their crops.
 - c. Fishermen can dry and preserve their fishes.
 - d. All of the above.

B. Directions: Choose the word that will best fit the statement.
Write your answer in your science notebook.

1. I'm a farmer, I wear (**long sleeves, sando**) whenever I work under the sun for a long period of time.
2. I'm a baseball player, I wear a/an (**umbrella, cap**) in the field.
3. I'm a mother, I tell my children to bring their (**umbrellas, bonnets**) during summer.
4. I'm a model, I wear (**sunblock, insect repellent**) when shooting on beaches.
5. I'm a carabao, when the sun is too hot, I (**keep on working, hide under a shade**).
6. I'm an athlete, I (**eat ice cream, drink plenty of water**) when it's hot.
7. I'm a surfer, I wear (**mask, sunglasses**) when I go to the beach.
8. I'm a student, I wear (**stylish, comfortable**) clothes especially during hot weather.
9. I'm a father, I remind my boys (**not to stay under the sun for too long, do whatever they like**).
10. I'm a teacher, I (**preach, teach**) children to make wise decisions.



Additional Activities









Directions: Write a jingle on the safety measures in protecting yourselves from the sun's heat and light. This will always remind you when working or playing under the sun. Do this in your science notebook. Please be guided by the rubric below.

Jingle Writing Rubric

	1 point	2 points	3 points	4 points
Theme	The song does not have a theme	The lyrics have little to no connection to the theme	The lyrics mostly follow the theme, some do not	The composition uses lyrics that relate to the overall theme
Lyrics	The song lyrics are not coherent. The words are not memorable.	The song lyrics are somewhat coherent.	The song lyrics are decent. The words are memorable.	The song lyrics are outstanding. The words are highly memorable.
Length	Less than 5 lines	5-9 lines	10-14 lines	15 lines or more



Answer Key

<p>What I Know</p>  <p>A.  1.  2.  3.  4.  5.</p> <p>B. Across 2. HARMFUL 4. FISHING</p> <p>Down 1. BENEFICIAL 3. SUNBURN 5. HARVESTING</p> <p>C. 1. good 2. bad 3. good 4. good 5. bad</p> <p>What's In</p>  <p>1. true 2. true 3. true 4. false 5. false</p>	<p>Activity 1-"How Beneficial is the Sun's heat and Light"</p> <p>What's New</p>  <p>1. Some animals (including birds, bees, and reptiles) are able to see into the near UV light to locate many ripe fruits, flowers, and seeds that stand out more strongly from the background. The fruits, flowers and seeds often appear quite different from how humans can see them.</p> <p>2. Sunlight helps improve our mood and we can enjoy going to picnic at the beach.</p> <p>3. Sunlight aid the workers in the sea shore to get salt from the shore.</p> <p>4. Plants can make their own food through the presence of sunlight.</p> <p>5. Farmers can easily harvest full grown <i>palay</i> through the aid of the sunlight.</p> <p>6. People can dry their laundry during sunny days.</p> <p>7. Fishermen can dry their catch immediately to preserve them.</p> <p>8. Farmers can dry their crops during sunny days.</p> <p>Guide Questions:</p> <p>1. People's activities that need sunlight: laundry, drying of crops, harvesting, drying of fish, salt making, and recreation</p> <p>2. Through the sun's heat and light people's activities can be done immediately</p> <p>Activity 2-"How Harmful is the Sun's Heat and Light on Living Things?"</p> <p>1. Plants wilt and dry when exposed to too much sunlight.</p> <p>2. Exposure to intense heat can cause animals to become ill and eventually die.</p> <p>3. Soil will become very dry, can crack causing the plants to die, so farming is not possible.</p> <p>Guide Questions:</p> <p>1. Plants leaves wilt and die, animals are badly affected because there is no food for them and intense heat can cause them to become ill and die.</p> <p>2. The sun can damage the retina of the eyes because of the ultraviolet rays.</p> <p>Activity 3 - "Am I Protected?"</p> <p>1. Using sunblock lotion, wide brimmed hat, and sunglasses will protect us during outing in beaches.</p> <p>2. When working in the field, we should wear wide brimmed hat, long sleeves and trousers.</p> <p>3. Use umbrella whenever you going out during sunny days.</p> <p>Guide Questions:</p> <p>1. wide brimmed hats, long sleeves, and trousers</p> <p>2. sunglasses</p> <p>3. sunblock lotion</p> <p>4. wide brimmed hats, long sleeves, and trousers</p> <p>5. We should practice safety precautionary measures to protect us from the harmful effects of the sun.</p>
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Activity 4 - "Can You Explain This?"

1. We need sunlight but due to too much exposure to sun's UV rays, the skin can cause sunburn, but with proper protective clothes we will avoid it.

2. Plants uses sunlight to make their own food but too much heat of the sun plants will wither and die.

3. Animals get their food from the plants that benefits from the sun but due to too much heat of the sun they also suffer and die.

A

B

C

A.

1. b

2. c

3. e

4. a

5. d

B.

1. x

2. x

3. ✓

4. x

5. x

6. ✓

7. ✓

8. ✓

9. ✓

10. ✓

What's More

What I Have Learned

Answers may vary.

What I Can Do

a. conserve water

b. When the sun is too hot he should put his three working cows under the shade and rest for a while.

c. apply sunblock lotion, wear sunglasses, and long sleeves for safety.

Assessment

A.

1. a

2. d

3. d

4. c

5. d

B.

1. long sleeves

2. cap

3. umbrella

4. sunblock

5. hide under a shade

6. drink plenty of water

7. sunglasses

8. comfortable

9. not to stay under the sun for too long

10. teach

Additional Activities

Answers may vary.

References

Abutay, Lelani R., et. al. *Science 4 Learner's Material*, 311-318.
Pasig City: Department of Education, 2015.

Abutay, Lelani R., et. al., *Science 4 Teacher's Guide*, 352-360.
Pasig City: Department of Education, 2015.

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