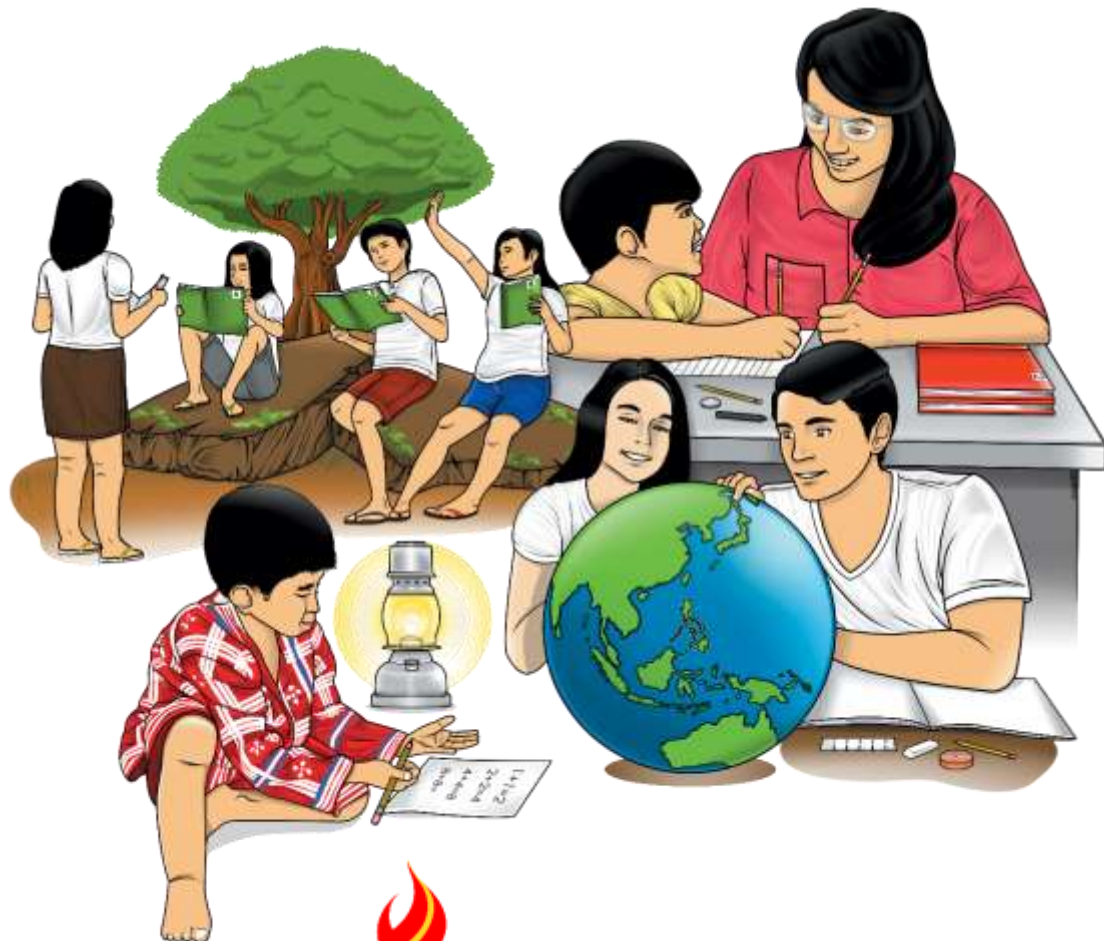


# Science

## 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)

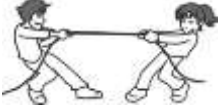




After going through this module, you are expected to be able to:

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.



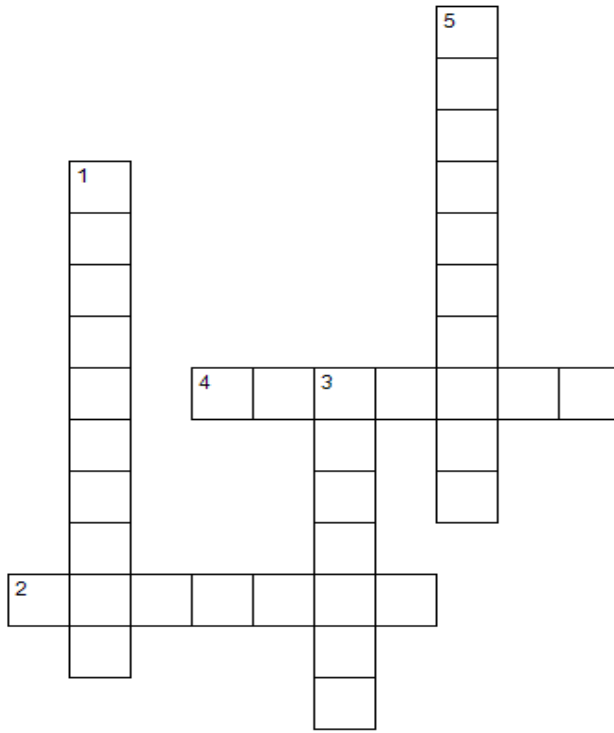
## What I Know

**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.

_____ 1.		• Kids are reading under the moonlight
_____ 2.		• Wearing sunglasses, hats and long sleeves in the beach when the sun is too hot
_____ 3.		• A farmer working in the field dressed in trousers and long sleeves.
_____ 4.		• Sleeping on the beach all day
_____ 5.		• 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. reddenning 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>	

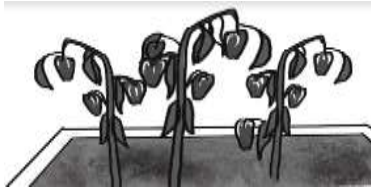


Pictures	Benefits
4. 	
5. 	
6. 	
7. 	
8.  <p>Illustrated by: Kristal Grace C. Ilao</p>	

**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
<p>1.</p> 	
<p>2.</p> 	
<p>3.</p>  <p style="font-size: small;">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.



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2.



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3.



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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.



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2.



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3.



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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.

<b>harmful</b>	<b>plants</b>	<b>safety</b>
<b>beneficial</b>	<b>animals</b>	<b>activities</b>

***I learned that:***

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## ***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**

	<b>1 point</b>	<b>2 points</b>	<b>3 points</b>	<b>4 points</b>
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><b>What I Know</b> </p> <p>A.  1.  2.  3.  4.  5.</p> <p>B. Across</p> <p>2. HARMFUL 4. FISHING</p> <p>Down</p> <p>1. BENEFICIAL 3. SUNBURN 5. HARVESTING</p> <p>C. 1. good 2. bad 3. good 4. good 5. bad</p> <p><b>What's In</b> </p> <p>1. true 2. true 3. true 4. false 5. false</p>	<p><b>What's New</b> </p> <p><b>Activity 1-"How Beneficial is the Sun's heat and Light"</b></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. 2. Sunlight helps improve our mood and we can enjoy going to picnic at the beach. 3. Sunlight aid the workers in the sea shore to get salt from the shore. 4. Plants can make their own food through the presence of sunlight. 5. Farmers can easily harvest full grown <i>palay</i> through the aid of the sunlight. 6. People can dry their laundry during sunny days. 7. Fishermen can dry their catch immediately to preserve them. 8. Farmers can dry their crops during sunny days.</p> <p><b>Guide Questions:</b></p> <p>1. People's activities that need sunlight: laundry, drying of crops, harvesting, drying of fish, salt making, and recreation 2. Through the sun's heat and light people's activities can be done immediately</p> <p><b>Activity 2-"How Harmful is the Sun's Heat and Light on Living Things?"</b></p> <p>1. Plants wilt and dry when exposed to too much sunlight. 2. Exposure to intense heat can cause animals to become ill and eventually die. 3. Soil will become very dry, can crack causing the plants to die, so farming is not possible.</p> <p><b>Guide Questions:</b></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. 2. The sun can damage the retina of the eyes because of the ultraviolet rays.</p> <p><b>Activity 3 - "Am I Protected?"</b></p> <p>1. Using sunblock lotion, wide brimmed hat, and sunglasses will protect us during outing in beaches. 2. When working in the field, we should wear wide brimmed hat, long sleeves and trousers. 3. Use umbrella whenever you going out during sunny days.</p> <p><b>Guide Questions:</b></p> <p>1. wide brimmed hats, long sleeves, and trousers 2. sunglasses 3. sunblock lotion 4. wide brimmed hats, long sleeves, and trousers 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.



**What's More**

**A.**

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

**B.**

1. x
2. x
3. ✓
4. x
5. x



**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***

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Pasig City: Department of Education, 2015.

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