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DepED
DEPARTMENT OF EDUCATION

Lesson Exemplar for Science

Quarter 4
Lesson
7

Lesson Exemplar for Science 4
Quarter 4: Lesson 7 (Week 7)
S.Y. 2024-2025

Development Team

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SCIENCE (EARTH AND SPACE SCIENCE) / QUARTER 4 / GRADE 4

I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	The learners learn that: 1. Soil and water resources are needed by plants and animals to live and grow. 2. Characteristics of the weather can be observed and measured. 3. The Sun is a ball of hot gases about 100 times the size of Earth, which radiates light energy needed by living things.
B. Performance Standards	By the end of the Quarter, learners use simple equipment to identify how types of soil hold water to support the growth of plants. They use instruments and secondary sources to measure and describe the characteristics of weather and use the information to make predictions about weather patterns in their local area. They demonstrate appreciation for the dangers of extreme weather events and use safe practice to protect themselves if they are caught in bad weather. Learners use personal observations and reliable secondary information sources to describe the Sun and explain its importance to life on Earth.
C. Learning Competencies and Objectives	**Learning Competencies** 1. describe some of the overall characteristics of the Sun, such as its composition, its size, and the main energy it radiates. 2. describe the changes in the direction and length of shadows from a shadow stick and use the information to infer why the Sun changes position during a day; and 3. make suggestions about the importance of the Sun to living things for a group or class discussion and confirm and record ideas by referring to trustworthy secondary sources of information.
1. Content	• Significance of Studying the Sun • Overview of the Sun's Characteristics (Photosphere, Chromosphere, Corona) • Sun's Movement and Day-Night Cycle • Introduction to Shadows • Importance of the Sun to Living Things (Role in Photosynthesis, Heat, and Light)
2. Integration	• Responsible use of technology in using sources of information • Appreciation on the importance of Sun to living things.

II. LEARNING RESOURCES
Balatbat, F. P, & Delos Reyes, Jr, R. L. (2017) The New Science Links. Quezon City: REX Book Store Delos Reyes, Jr, R. L., & Quicho, K.L. (2022). Science Links. Quezon City: REX Publication. Quintana, J.R. (2019). Elementary Science Explorer 4. Quezon City: PSICOM Publishing Inc.

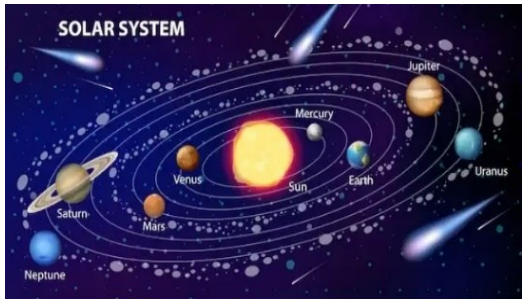
III. TEACHING AND LEARNING PROCEDURE		**NOTES TO TEACHERS**
A. Activating Prior Knowledge	**1. Short Review** (Week 8, Day 1): "Sun Showdown" As a review, you will ask questions about the past lesson on the importance of the sun and its different layers and their characteristics. Using a flashcard, the learners will write their answers on it and flash it. The first one to flash to correct answer will be given a point. You may say: *I will describe a part/layer of the sun and name it.*	In this part, the different layers of the sun, both inner and outer layers, will be described by the learners. A TRUE or FALSE questions can be ask to bring out the concepts/ideas they learned about the importance of the sun.
B. Establishing Lesson Purpose	**1. Lesson Purpose:** You may say to the class: *Are you now familiar with the importance of the sun and its different layers? This week, we'll learn about the movements of the sun, its role in the formation of shadows, and know its importance to all living and non-living things on earth.* **2. Unlocking Content Area Vocabulary:** *"Pass the BallCABULARY"* Instructions: 1. Post the following concepts on the board: *Rotation apparent night* *Shadow movement day* 2. Prepare strips of paper where she will write the meaning of the different words, role them and place them in a box.	A 1–2-minute review on the past lesson may be conducted here. Other words which the teacher deemed necessary can be included.

	3. To select who can participate, pass a ball while playing a song,when the song stops, the one holding the ball will draw a strip of paper, read allowed the definition written on it and post it beside the work it describes. 4. After the activity, let the learners read aloud the words and their definitions.	
C. Developing and Deepening Understanding	**SUB-TOPIC 3:** Sun's Movement and Day-Night Cycle (Week 8) **1. Explicitation:** *"Battle of the Brains"* *Instructions*: 1. Use Learning Activity Sheet #3. 2. Group the class into two for a debate activity. 3. Each group will draw which stand they will take, either "The Sun is Moving" or "The Sun is Not Moving". 4. Remind the group of the important things to do before, during, and after the debate. 5. After the debate, ask these questions to the class. a. What are the presented evidences that the Sun is moving? b. What are the presented evidences that the Sun is not moving? c. Is the Sun really moving? **2. Worked Example:** "Sunny Motion" 1. Divide the class into two groups. Group 1 will watch the video "Does the Sun Rotate?", while Group 2 will watch the videos "Changing Position of the Sun in the Sky" and "The Apparent Motion of the Sun". 2. Each group will be given worksheet to answer *(Worksheet Learning Activity #4).* 3. Ask the following questions: **Group 1** a. Does the Sun rotate? If yes, how long? b. Who discovered that the Sun rotates? c. What was the basis of Galileo in claiming that the Sun rotates? d. What did Galileo observe about the sunspots that made him conclude that the Sun is indeed rotating? e. Describe the rotation of the Sun in its different parts.	

	Group 2 a. What did you observe about the Sun in the first video? b. Are you convinced by the video that the Sun really moves across the sky? c. In the second video, does the Sun really move across the Sky? Why? Why not? d. What causes the apparent movement of the Sun in the sky? 4. A representative from each group will present to class what they learned from the video they watched. **3. Lesson Activity:** *Interactive Discussion* Ask the following question and present the following concepts for emphasis: <u>*Group 1*</u> 1. Does the Sun rotate? If yes, how long? - *Yes, the Sun rotates on its axis once in every 27 days* *2.* Who discovered that the Sun rotates? - *Galileo Galilei* 3. What was the basis of Galileo in claiming that the Sun rotates? - *By his observations of the sunspots, he discovered that the Sun rotates* 4. What did Galileo observe about the sunspots that made him conclude that the Sun is indeed rotating? - *The vanishing and returning of sunspots according to Galileo Galilei is due to the rotation of the Sun.* 5. Describe the rotation of the Sun in its different parts. - *The speed of Sun's rotation differs in its different parts. The Sun's equator regions rotate faster at about 24 days while in the polar regions rotate once at over 30 days.* <u>*Group 2*</u> 1. What did you observe in the first video? - *The Sun seems to move across the sky during daytime.* *2.* Are you convinced by the video that the Sun really moves across the sky? - *(answers may vary)* 3. Does the Sun really move across the Sky? - *No, the Sun does not move across the sky.*	Before the discussion, the teacher may show the video before discussing their contents on the movements of the Sun.

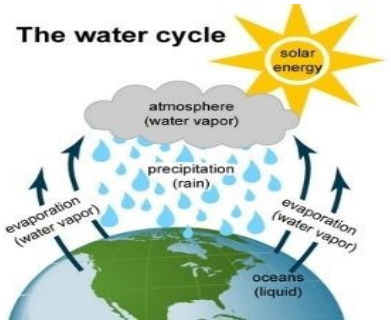
	4. What causes the apparent movement of the Sun in the sky? - *The apparent movement of the Sun across the sky is caused by rotation of the earth on its axis. (from here, integrate now questions about Day and Cycle Cycle)* **SUB-TOPIC 4:** Introduction to Shadow **1. Explicitation:** *Pinoy Got Talent Show* Have the learners watch a segment of the performance of the El Gamma Penumbra for the Pinoy Got Talent through the given link below. It is expected that after watching the video, they will be able to tell that what they've seen were shadows of the performers. ***Official Pilipinas Got Talent Season 3 Semi-Finalist El Gamma Penumbra Performance Night:*** https://youtu.be/jolCDDniWk4 Ask the following: 1. What can you say about the performance? 2. Can you see the faces of the performers? If not, why? 3. What are shadows? **2. Worked Example:** *Crossing the Sky* Instructions: 1. Tell the learners that they will learn more about how shadows are formed and their length and direction throughout the day as they watch a video clip (*Worksheet Learning Activity #5*). 2. Ask these questions to focus their attention to the video. *a.* What happens when your body blocks the sunlight? b. What do you call the black area that is formed when your body blocks the sunlight? c. How are shadows formed? d. Why do ancient people able to tell the time of the day based on the position of the Sun in the sky? e. Describe the length and direction of shadows of the lamp post or flagpole at certain points of the day as follows: 7:00 AM _____	To manage time, start the video at 1:16 timestamp and stop at 3:28 timestamp.

	9:00 AM _____ 11:00AM _____ 12:00NN _____ 2:00 PM _____ 6:00 PM _____ ***Following the Sun:*** **https://www.youtube.com/watch?v=1SN1BOpLZAs** **3. Lesson Activity:** *Interactive Discussion* Ask the following question and present the following concepts for emphasis: a. What happens when your body blocks the sunlight? - *A dark/ black area will be formed* *b.* What do you call the black area that is formed when your body blocks the sunlight? - *The black area is our shadow.* *c. How are shadows formed?* - *Our shadows are formed when we block the sunlight because our body doesn't let the light pass through it.* d. Why do ancient people able to tell the time of the day based on the position of the Sun in the sky? - *Ancient people can tell the time of the day based on the position of the Sun because the Sun follows a certain pattern every day.* e. Describe the length and direction of shadows of the lamp post or flagpole at certain points of the day: 7:00 AM *The shadow is long and stretches towards West.* 9:00 AM *A bit shorter than that of the shadow formed at 7AM and still pointing towards West.* 11:00AM *The shadow is shorter than that at 9AM and still pointing West.* 12:00NN *Very short and can hardly be seen, this is so because the Sun is exactly just above the lamp post.* 2:00 PM *The shadow grew longer, this time pointing East.* 6:00PM *The shadow grew even longer and pointing East.* f. What can you say about the length and direction of the shadows throughout the day?	The teacher can make use of the video presented before to develop the lesson through interactive discussion.

	- *The Sun creates longer shadows in the morning as it rises from the East and the shadow points towards West. At noon time, when it almost directly overhead, the shadows are short and almost in between East and West. As the sun sets at the West in the afternoon, the shadows get longer again, but this time pointing East.* The teacher may ask other questions which may be deemed necessary in the development of the lesson. **SUB-TOPIC 5:** *Importance of the Sun* **1. Explicitation:** Sun Trip: Think-Pair-Share *Instructions*: 1. Have the learners work in pairs. 2. Send them outside the room and instruct them to observe the environment. 3. Tell them to list the importance of the Sun to the living things around them including plants and animals. 4. After that, have a short sharing in class where they can share what they've listed. (*Worksheet Learning Activity #6*) 5. Ask the following questions during the sharing. a. Is the Sun important to us on Earth? b. What benefits do we get from the Sun? **2**. **Worked Example:** *Listen: Pictures talk a lot!* In a dyad, the teacher tells the learners to observe the given pictures below. From the pictures, they will tell the importance of the Sun (to Earth, plants, animals and human beings). (*Worksheet Learning Activity #7*)  	In here, the teacher will post all the pictures on the board. Big enough for the learners to see. The learners will be given time to brainstorm with their partner about the message of each picture.

	The Sun provides the gravitational force that keeps all heavenly bodies in their orbit. https://www.factscrush.com/2023/01/facts-about-solar-system.html  The Sun is a source of renewable energy/solar energy. https://www.ecoredux.com/advantages-disadvantages-solar-energy	The Sun provides light energy to plants for photosynthesis. https://letstalkscience.ca/educational-resources/backgrounders/light-plants  Sunlight is needed by human body to manufacture vitamin D. https://www.ecoredux.com/advantages-disadvantages-solar-energy	It is important here that the learners be able to tell how the Sun helps us a lot. During the sharing period, it is important to emphasize that: (1) the Sun helps plants to make their own food; (2) the Sun warms the Earth; (3) the Sun helps us see everything around us; etc.

The Sun provides us with light to see things around us.
https://www.thespruce.com/backyard-landscaping-ideas-4172952



The Sun provides energy that powers the water cycle.
https://www.nps.gov/articles/000/the-power-of-water-creating-energy.htm

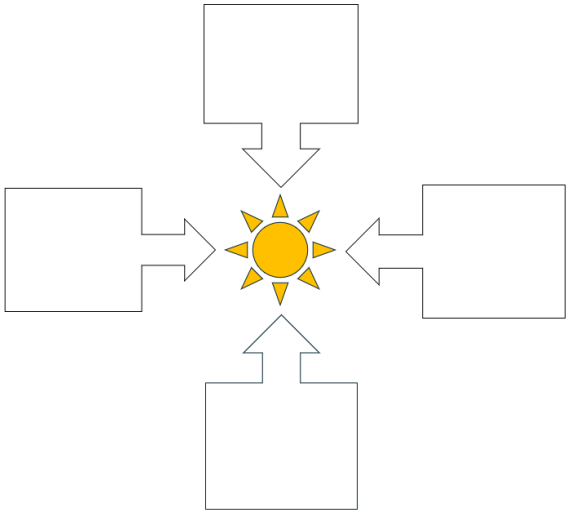
The Sun helps people tell time.
https://www.thehansindia.com/posts/index/Education-and-Careers/2019-02-06/How-we-tell-time-using-the-sun/489012

3. Lesson Activity: *Listen: I have Something to Share!*
Objectives: Through the fishbowl method, the learners will share what they've learned from the presented pictures.
Instructions:

1. The dyads will be separated; one will join the inner circle and the other the outer circle.
2. Members of the inner circle will discuss about the importance of the Sun, while members of the outer circle will take note and summarize the ideas presented in the discussion (this activity will be repeated, this time, the pupils in circle will exchange position).

The interactive discussion should not be limited to the questions and concepts presented here. Other relevant questions are encouraged.

	3. After the activity, the teacher will conduct interactive discussion. The following questions and ideas may be discussed during the discussion. a. Is the Sun important to us? - *Yes, the Sun is important to us.* b. What are the importance of the Sun? • *The Sun keeps the planets and other evenly bodies in their orbit through its strong gravitational force. Without the Sun, all heavenly bodies fly in different directions and may even collide with each other.* • *The Sun provides light energy needed by plants to manufacture their own foods through the process of photosynthesis. This process gives plants the ability to provide food to all life forms.* • *The Sun's solar energy can be converted to electricity. It is a renewable source of energy on Earth. Through solar panels, sunlight is converted to electricity.* • *Sunlight is needed to help the skin produce Vitamin D. This vitamin is essential in the absorption of calcium needed to keep the bones healthy and strong.* • *We can see everything around us because the Sun provides us light to see them.* • *Water cycle occurs due to Sun's energy. It facilitates the formation of clouds, rain, and wind.* • *The Sun used to tell time before through sundials. Before clocks were invented, people just looked at the position of the Sun in the sky to determine the time.*	

D. Making Generalizations	**1. Learners' Takeaways** Using the chart below, list at least 4 important concepts that you've learned from this week's lesson.  **2. Reflection on Learning** Group the class into groups with five members. Instruct the learners to do the following: 1. Integrate the concepts learned in this unit. 2. Make a story about the Sun with the title "The Day the Sun Stops Shining". 3. Be creative in organizing the events in the story. Let the following questions guide in writing the story. a. What do you think will happen to humans if the Sun stops shining? b. What do you think will happen to other living things? c. How will absence of the Sun affect lives and properties? d. What do you think will be human's chance for survival?	

Rubrics for the Sun Story

Criteria	1 point	3 points	5 points
Clarity of the flow of the story	The story flow is not clear.	The story flow is a bot clear.	The story flow is very clear.
Appropriateness of the events in the story	The events in the story are not convincing.	The events in the story are a bit convincing.	The events in the story are very convincing.
Clarity of the message	The message of the story is not clear.	The message of the story is a bit clear.	The message of the story is very clear.
Relevance	The message of the story is not relevant to the concept learned about the lesson.	The message of the story is a bit relevant to the concept learned about the lesson.	The message of the story is very relevant to the concept learned about the lesson.
Cooperation	Almost half of the members did not help in doing the task.	Only three to four members helped in doing the task.	All members helped in doing the task.

IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION		NOTES TO TEACHERS
A. Evaluating Learning	**1. Formative Assessment** A. Read and analyze the following questions. Choose the letter of the correct answer. 1. Which statement describes the "apparent motion of the sun"? a. The movement of the sun across the sky as observed from outer space. b. Actual movement of the Sun across the sky. c. The movement of the sun across the sky as observed on earth. d. The expected actual motion of the sun across the sky throughout the day. 2. What causes day and night? a. The revolution of the earth around the sun. b. The revolution of the moon around the earth. c. The rotation of the earth on its axis. d. The rotation of the sun on its axis.	**Answer Key** A. 1. a 2. c 3. b 4. a 5. c B. Answers vary

3. Which light shows causes shadows in outdoor environment during daytime?
   a. Moon b. sun c. stars d. lightbulbs

4. When the sun is at your back, where is your shadow?
   a. In front of me. c. It's beside me.
   b. Behind me. d. Cannot be seen.

5. To form a shadow, light travels from a light source, like the sun, to a/an_____.
   a. transparent material. c. opaque material.
   b. translucent material. d. any material.

B. List 5 ways you use sunlight in your everyday living.

2. Homework (Optional) – *Collage Making*

The Sun is the major source of energy on Earth. The energy it radiates is harnessed and converted to electricity. Collect pictures from magazines showing the importance of the Sun as a source of solar energy. Make a collage of these pictures. Form the collage on one-half illustration board.

Parents or adults may help the learners in making the collage.

Rubrics for Collage

Criteria	Description	Points	Points Obtained
Organization	The concept was clearly and creatively conveyed	10	
Content	The pictures were appropriate to the theme.	5	
Visual presentation	The idea was clearly presented based on the pictures and words used.	5	
	Total	**20**	

Source: https://www.scribd.com/document/420327033/RUBRIC-FOR-COLLAGE-docx

<table>
<tr><td rowspan="5">A. Teacher's Remarks</td><td>Note observations on any of the following areas:</td><td>Effective Practices</td><td>Problems Encountered</td><td rowspan="5"></td></tr>
<tr><td>strategies explored</td><td></td><td></td></tr>
<tr><td>materials used</td><td></td><td></td></tr>
<tr><td>learner engagement/ interaction</td><td></td><td></td></tr>
<tr><td>others</td><td></td><td></td></tr>
<tr><td>B. Teacher's Reflection</td><td colspan="3">Reflection guide or prompt can be on:
▪ <u>principles behind the teaching</u>
What principles and beliefs informed my lesson?
Why did I teach the lesson the way I did?

▪ <u>students</u>
What roles did my students play in my lesson?
What did my students learn? How did they learn?

▪ <u>ways forward</u>
What could I have done differently?
What can I explore in the next lesson?</td><td></td></tr>
</table>