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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

Writer:
- Leizel A. Concepcion (Mariano Marcos State University)

Validator:
- Dominador D. Mangao (Philippine Normal University)

Management Team

Philippine Normal University

Research Institute for Teacher Quality

SiMERR National Research Centre

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 7, Day 1)*** Let the pupils sing the song The Sun Song (can be accessed through the link below).  **The Sun Song** https://www.youtube.com/watch?v=OBnDKfHtcd0 After the song, ask the following questions: 1. What is the song all about? 2. When do we see the Sun? 3. What are the things that we can get from the Sun? 4. Without the Sun, what are the possible things that may happen to us here on Earth?	It is important that the teacher learns the song first before presenting it to class so that she can lead the pupils in singing the song. In here, the teacher should also give emphasis on the key ideas about the Sun presented in the song. Also, after singing the song, the teacher asks some questions to elicit from the pupils what concepts they learned from the song
B. Establishing Lesson Purpose	**1. Lesson Purpose:** *Chart Organizer and KWL Chart* 1. Ask the question: Is the Sun important to us and to all things on Earth? 2. Ask the learners to prepare their K-W-L chart as shown below.	The teacher will guide the pupils in accomplishing the KWL chart. After accomplishing it, have a discussion on what they've

What I **KNOW** about the Sun?	What I **WANT** to know about the Sun?	What I've **LEARNED** about the Sun?

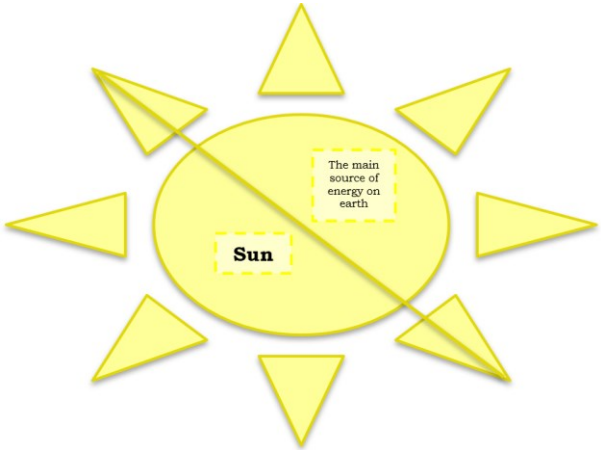
3. They will accomplish the first two columns.
4. After all the activities, they will accomplish the third column and submit it to the teacher.

You may tell the class: *"I am glad that there are things that you know already about the Sun. You can use and enrich this knowledge as we discuss more about the Sun. For the next two weeks, we will address everything that you want to learn. Just be sure to participate actively on the different activities that we will be performing for you to know more about our Sun."*

2. Unlocking Content Area Vocabulary: "Finding My Better Half!"

Conduct a game and give this as direction:

"*I have here cut pictures of the Sun. Find the other half of each piece to know the meaning of the terms which you will be encountering as we go on with our lesson."* (Example cut picture of a Sun with the corresponding term and its meaning.)



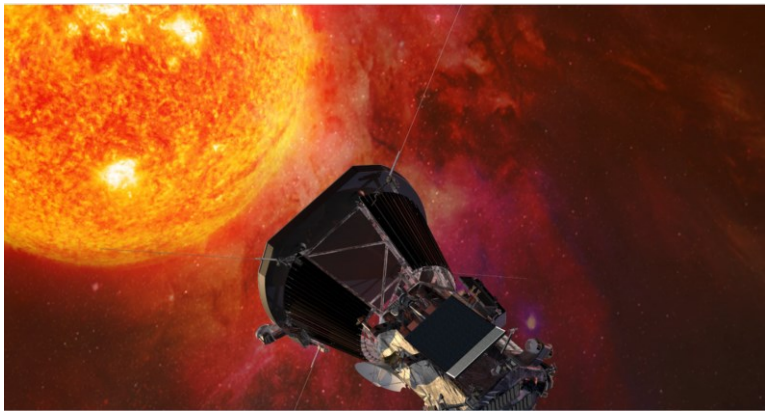
Other words to be defined includes (but not limited to the following):

a. *Photosphere* – the surface of the Sun
b. *Corona* – the outermost layer of the Sun which is made up of hot gases that

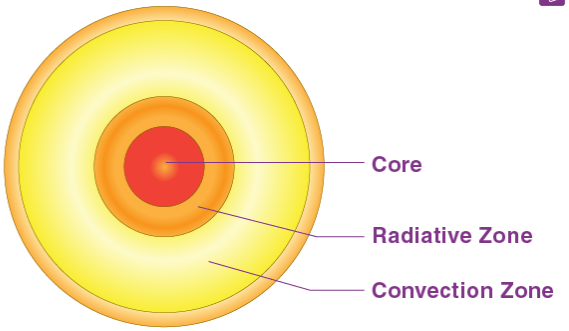
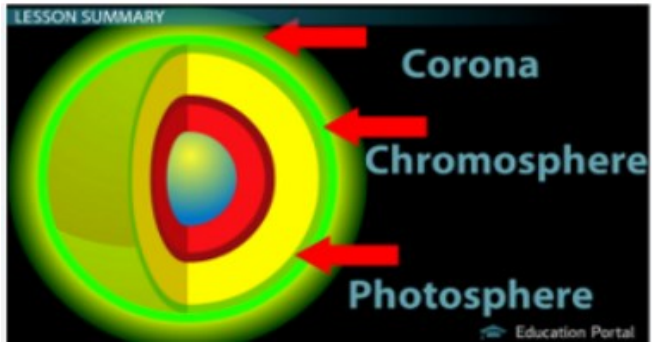
reflected on the chart. From here, you will smoothly direct the learners on the purpose of this lesson.

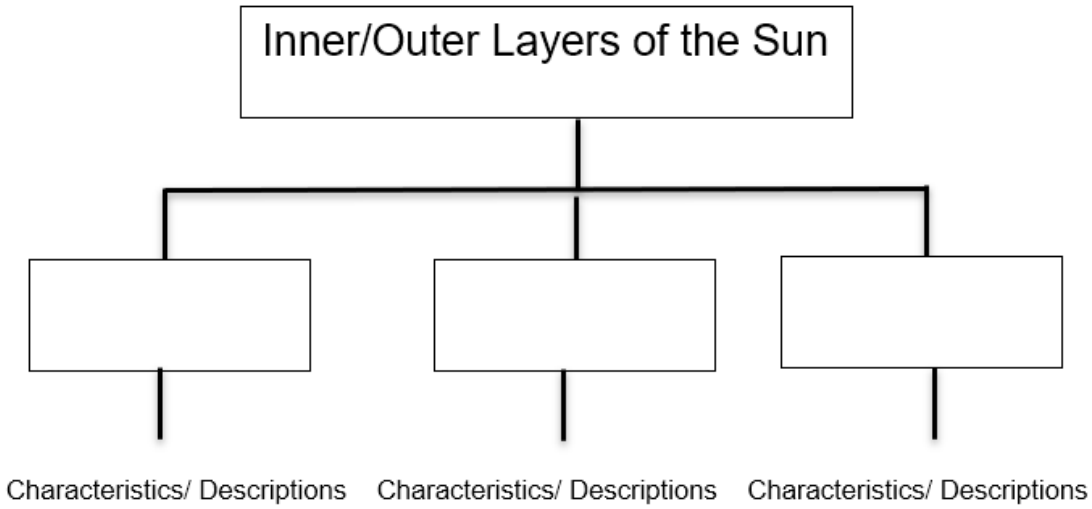
For the KWL chart, this serves as there "data bank" on what they know and what they will come to know about the topic. So, it is important that each learner has a KWL chart. This will also serve as one of the bases to monitor the learning progress of the learners.

The teacher should cut the pictures in varied ways. In the form of a game, the learners will match the cut pieces to find the meaning of the different terms. The words to be defined are not limited to the words presented here. The teacher should include all words that needed to be defined. Make sure that the definition given for each term is concise to be understood by the young learners.

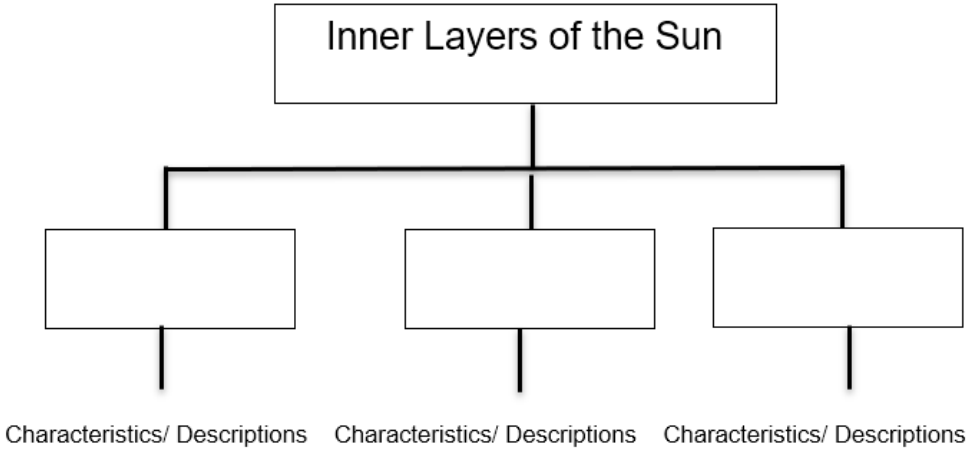
	are lighter than those in the chromosphere. c. *Chromosphere* - a thin layer of plasma that lies between the Sun's visible surface (the photosphere) and the corona (the Sun's upper atmosphere)	
C. Developing and Deepening Understanding	**SUB-TOPIC 1:** Significance of Studying the Sun **1. Explicitation:** *"A Punch to Sun"*  **https://solarsystem.nasa.gov/news/268/10-things-june-12-nasas-first-mission-to-touch-the-sun/** • Show this picture and let the pupils describe what they see. • Ask this thought-provoking question: *"If the Sun is a ball of burning gases, why do scientists still keep on sending astronauts to study the Sun closely?"* **2. Worked Example: "**Solar Headbanging: Why Study the Sun? 1. Divide the class into two groups. 2. Each group will brainstorm about the topic: • Why is it important to study the Sun? • What are the benefits that we get when we study the Sun? 3. They will write their answer on a sheet of manila paper. 4. After 10 minutes, each group will present their answers to the class.	

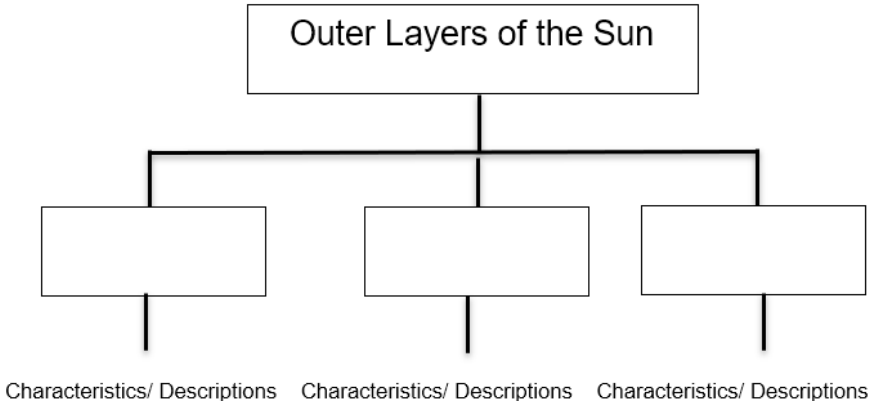
	3. Lesson Activity: "Directed Reading Thinking Activity (DRTA)" • Use the Learning Activity Sheet #1. • Present this part of an article excerpted from an online source. **Why it is important to know more about the Sun?** Studying the Sun, which is the largest object in the solar system, and the nearest star to Earth, can help scientists understand more about other stars in the Milky Way galaxy, and about stellar objects in other galaxies. A multitude of eruptive phenomena occur in the Sun. While the Sun is the source of energy for all life forms, the release of excessive energy towards Earth results in disturbances in the near-Earth space environment. For instance, these disturbances disrupt communication systems and damage spacecraft. Also, astronauts are sometimes in danger of being exposed to explosive solar phenomena. Therefore, understanding solar dynamics will allow scientists to devise systems that will ensure early warning of eruptive events. Inside the 4.5-billion-year-old star, nuclear fusion reactions occur. Aditya-L1's, a coronagraphy spacecraft for studying the solar atmosphere which is designed and developed by the Indian Space Research Organization, findings may help scientists understand these reactions better, and how they power the Sun. The temperature of the central region of the Sun, or the core, is about 15 million degrees Celsius, and that of the photosphere is about 5,500 degrees Celsius. Aditya-L1 will also study the reasons behind this difference in temperature. Thermal and magnetic phenomena keep occurring inside the Sun, and hence, the star serves as the perfect natural laboratory to understand certain occurrences that cannot be explained in the laboratory. Excerpt from the article: Kabir, Radifah, Sept 03, 2023. *Science For Everyone: Why It Is Important To Study The Sun, And How Aditya-L1 Will Do So.* Abp LIVE. March 5, 2024 <https://news.abplive.com/science/sun-aditya-l1-sun-significance-how-knowledge-about-sun-has-evolved-what-more-needs-to-be-known-1627170?fbclid=IwAR24jrY2kbwhPBXNaYihJEGM8rgj9oGmSYFtgwY6JkE7N > • Discuss the topic based on the presented reading material. **SUB-TOPIC 2:** Sun's Layers and Characteristics *(Week 7, Day 2 and 3)*	The teacher might present the article in varied ways. The teacher will employ the DRTA. Refer to the Worksheet Learning Activity #1. JigSun Puzzle is a variation of a jigsaw puzzle. The term is coined

	1. Explicitation: "JigSun Puzzle" 1. Use the Learning Activity Sheet #2. 2. Group the class into two. 3. Each group will be given pieces of a puzzle to solve. One group will form the outer layers of the Sun and the other will be the inner layers. 4. The groups will label the structure of the Sun as shown on picture which they've formed. They may search online to describe each layer of the Sun.  *https://byjus.com/physics/layers-of-sun/*  https://study.com/learn/lesson/structure-sun-anatomy-diagram.html 5. After the activity, the two groups will post their works on the board. 6. Ask the following questions: • *What are the outer layers of the Sun?* • *What are the inner layers of the Sun?*	from the fact that the picture to be formed is the picture of the Sun. The teacher will prepare two sets of jigsun puzzle: One (1) for the inner layers of the Sun and one for the outer layers of the Sun. During the sharing, it is very important to note that there are 3 inner layers of the Sun (core, the radiative zone, and the convective zone) and 3 outer layers or atmospheric layers (photosphere, the chromosphere, and the corona.

	2. Worked Example: "Solar Navigation" *(Worksheet # 2)* Instructions: 1. Group the class into two: one assigned to describe the inner layers of the Sun, the other will describe the outer layers of the Sun. 2. In describing the different layers of the Sun, each group can use the following graphic organizer:  **Guide Questions:** 1. What are the layers of the Sun? 2. Describe each layer of the Sun and enumerate the distinct event/s happening in each layer. **4. Lesson Activity:** Interactive Discussion (Week 7, Day 4) 1. After the students accomplished the the graphic organizer, call a member of each group to present their work. 2. Facilitate interactive discussion to give emphasis on the concepts learned. 3. Ask the following questions and present the following concepts for emphasis: 1. What are the inner layers of the Sun?	In this part, it is important that the teacher views the videos and keep a graphic organizer for herself noting the concepts about the different layers of the Sun. It is important to note here that each layer of the Sun has specific feature and function/s. One group will be assigned to watch and describe the inner layers of the Sun, the other group will be the outer layers of the Sun. To the teacher: The discussion is not limited to the given questions. Other related and relevant questions are encouraged. Useful video links: • Layers of the Sun Explained – Inner Layers: https://youtu.be/BGkqGb-KDK4 • Layers of the Sun Explained – Outer Layers: https://youtu.be/KFxJ_8ob6BM

	The inner layers of the Sun are the core, radiative zone, and the convective zone. 2. What are the outer parts of the Sun? *The outer parts of the Sun are the photosphere, chromosphere, and the corona)* 3. Describe each layer of the Sun. a. Core is the hottest layer of the Sun. Its temperature increases with depth. b. Radiation zone is found between the core and the convection zone. Once the energy is produced in the core, it travels outward through this layer. *c. Convection zone is the Sun's layer where gases expand and rise. As these gases get higher, they lose some of their heat, cool down, and sink back at the center.* *d. The photosphere is the reddish disc where the light that we see from the Sun comes from.* *e. The chromosphere is a reddish, brilliant layer. This part is made up of hot gasses that make its irregular shape.* *f. The corona or crown is a wide but pale ring surrounding the Sun and is the outermost layer of the Sun. It is only visible on Earth during a total eclipse.*	
D. Making Generalizations	**1. Learners' Takeaways** **Direction:** Summarize what you've learned from the different activities you had by completing the sentences and graphic organizers given below. 1. It is important to study the Sun because _____ _____ . 2. The Sun is important to important to living things because _____ _____ 3. Fill-out the graphic organizers below.	





2. Reflection on Learning

Do you consider the Sun important to your life? Why? Give instances when you need the Sun in your life.

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. What form/s of energy does the Sun radiate? A. Heat energy C. Light and Heat energy B. Light energy D. Light or Heat energy 2. In which layer of the Sun does the light come from? A. core C. corona B. photosphere D. convection zone 3. What are the most abundant gases in the Sun? A. hydrogen and oxygen C. carbon dioxide and helium B. oxygen and carbon dioxide D. hydrogen and helium 4. What process is involved in the generation of the Sun's energy? A. Nuclear fission C. Nuclear reaction B. Nuclear fusion D. None 5. What layer of the Sun do we see during total solar eclipse? A. corona C. sunspot B. prominences D. solar wind B. Draw and label the inner and outer layers of the Sun.	**Answer Key** 1. c 2. b 3. b 4. a 5. a

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.

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

A. Teacher's Remarks

Note observations on any of the following areas:	**Effective Practices**	**Problems Encountered**
strategies explored		
materials used		
learner engagement/ interaction		
others		

B. Teacher's Reflection

Reflection guide or prompt can be on:

- *principles behind the teaching*

What principles and beliefs informed my lesson?
Why did I teach the lesson the way I did?

	▪ *students* *What roles did my students play in my lesson?* *What did my students learn? How did they learn?* ▪ *ways forward* *What could I have done differently?* *What can I explore in the next lesson?*	