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DepED
DEPARTMENT OF EDUCATION

Lesson Exemplar for Science

Quarter 3
Lesson
6

Lesson Exemplar for Science Grade 4
Quarter 3: Lesson 6 (Week 6)
S.Y. 2024-2025

Development Team

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SCIENCE/QUARTER 3/ GRADE 4

I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	*The learners learn that:* 1. Science processes help in observing and predicting how things move. 2. Gathering scientific information helps explain the behavior of objects and materials. 3. Energy is present whenever there is movement, sound, light, or heat.
B. Performance Standards	*By the end of the Quarter, learners are expected to:* a. demonstrate an understanding that science processes are used to gain deeper understanding about forces and energy that cannot be seen directly, including the properties of light, sound, and heat; and b. apply their observation skills and objectivity to identify where energy is evident in their local communities and how it is used by people.
C. Learning Competencies and Objectives	***Learning Competency 1: The learners identify that energy is something that can cause change including light, sound, and heat energy.*** *Lesson Objective 1: Recognize that energy exists in various forms and can be transferred from one object to another and transformed from one form to another.* *Lesson Objective 2: Identify and distinguish between different forms of energy, including light, sound, and heat energy.* *Lesson Objective 3: Recognize that light energy is a form of energy associated with the emission of visible light.* *Lesson Objective 4: Provide examples of how light energy can cause changes, such as lighting up a room or photosynthesis in plants.* *Lesson Objective 5: Explain how sound energy can cause changes, such as producing sound in musical instruments or conveying information through communication.* *Lesson Objective 6: Describe how heat energy can cause changes, such as cooking food, melting ice, or heating a room.* *Lesson Objective 7: Recognize the importance of safety when dealing with energy sources and devices.* ***Learning Competency 2: The learners observe and identify sources and uses of light, sound, and heat energy at school, at home and in the local community.*** *Lesson Objective 1: Define the concept of energy sources and how they are harnessed to produce different forms of energy, such as light, sound, and heat.*

	Lesson Objective 2: Identify sources of light energy at school, home, and in the community, such as electric lights, sunlight, and candles. *Lesson Objective 3: Observe sources of sound energy, including musical instruments, electronic devices, and natural sounds, in different settings.* *Lesson Objective 3: Identify sources of heat energy, such as stoves, ovens, heaters, and the sun.* *Lesson Objective 4: Develop an awareness of safety considerations when dealing with energy sources and devices, emphasizing fire safety and prevention.* *Lesson Objective 5: Apply the understanding of energy sources to improve energy efficiency at school, home, or in the local community.*
D. Content	1. Energy is Everywhere 2. Sources and Uses of Light, Sound, and Heat Energy 3. Light Energy from the sun 4. How to protect oneself from intense light, sound, and heat
E. Integration	• Araling Panlipunan: Economic Services of the Government on Light and Communication • Health: One must be aware of light intensity and its effects to eyes • SDG 12-Sustainable Cities and Communities - Responsible use of materials and energy resources in everyday life

II. LEARNING RESOURCES

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- Differentiated Teaching. (n.d.). A beginner's guide to teaching energy. https://www.differentiatedteaching.com/teaching-energy-in-science/#Teaching_Energy_Hands-on_Activities_Resources_and_Lessons.
- Gonzales, D. (2016). Waves: Physical Science - Grade 4. https://learning-in-action.williams.edu/education-outreach/files/2018/05/Grade_4_Waves_S15_v5.2.pdf?fbclid=IwAR08-gdBwusDdWBB3pAkVK_etEjDoNh5EeNig8f0wM4i-ZtJTPDqj4mXTQQ
- Kasas, J. et al. (n.d.). Science Grade 3 Teacher's Manual. Curriculum Development Division (CDD). https://www.jica.go.jp/Resource/project/png/004/materials/ku57pq00003t6ut6-att/g3_science_tm_02.pdf

- Kidsworldfun. (n.d.). Light Energy - Science Lessons for Grade 4 Students. https://www.kidsworldfun.com/learn-science/light-energy.php
- Kidsworldfun. (n.d.). Sound Energy - Science Lessons for Grade 4 Students. https://www.kidsworldfun.com/learn-science/sound-energy.php
- University of Washington (2014). Sound Energy Unit - Grade 4. Tools for Ambitious Science Teaching. https://www.esd112.org/wp-content/uploads/4-sound-unit-all-in-one.pdf

III. TEACHING AND LEARNING PROCEDURE		NOTES TO TEACHERS
A. Activating Prior Knowledge	**1. Short Review** **DAY 1** *Problem-Solving* Bantay, a playful Aspin, was enjoying his afternoon in their backyard. Suddenly, a lizard fell in front of him. In a flash Bantay took off, covering a meter in hot pursuit. Graph Bantay's motion using the data below.	Using the skills in making a line graph in the previous week, let the learners graph the data shown in the table. You can make this as a group or an individual task. Let them share their answers in class.

Time (seconds)	Bantay's distance (meters)
0	0
1	1
2	3
3	3
4	4
5	7

B. Establishing Lesson Purpose	**DAY 1** **1. Lesson Purpose** *Use the activity entitled "Transfer of energy game"* **TRANSFER OF ENERGY GAME (20 minutes)** The objective of this activity is to let the pupils understand that energy can be transferred and can cause change. They will observe the transfer of energy from themselves to the handkerchief, and from the handkerchief to the balls. *Instructions:* 1. Have students sit in a circle around the handkerchief. 2. Have students hold onto the edge of the handkerchief and wave it up and down. 3. Have students identify the source of the handkerchief's energy. 4. Explain that the students are transferring energy from the movement of their arms to the handkerchief. 5. Have students stop waving the handkerchief. Once it is still, place the balls on it. 6. Have students wave the handkerchief again. 7. Experiment with manipulating the handkerchief in different ways, to make the balls roll around, bounce gently, or bounce high. 8. Ask students to identify the source of the balls' energy. 9. To prompt, ask students if they are touching the balls. Ask students what is touching the balls. 10. Once students have identified that the balls are getting their energy from the movement of the handkerchief, make the link to the complete transfer of energy: students transfer their energy to the handkerchief, and the handkerchief transfers this energy to the balls, making the balls move. This is energy transfer in action!	

	2. Unlocking Content Area Vocabulary • **Energy –** is the ability to do work. This means that energy makes things happen. The Sun, as the principal source of energy for the Earth, makes other forms of energy possible. • **Energy Transfer -** is the process of moving energy from place to place (or from one object to another), but the form of energy does not change.	
C. Deepening Understanding	**DAY 2** **SUB-TOPIC 1: Energy is Everywhere** **1. Explicitation** In introducing the idea that energy is everywhere, the teacher will read the story below: ***"Whispers of Energy: A Day in a World of Wonders"*** Once upon a time in the bustling town in the countryside, there lived a curious group of 4th-grade friends – Emma, Alex, and Mia. One sunny morning, their teacher, Mr. Diaz, announced an exciting journey into the world of energy. As the students settled into their seats, Mr. Diaz began, "Today, we're going to discover the incredible tale of how energy is everywhere and how it causes amazing changes." The adventure started with Emma waking up in her cozy room. "Imagine waking up to the warmth of the sun," Mr. Diaz said. "The sunlight streaming through your window is a powerful energy that brings light to the world and kick-starts the day."	

Eager to explore, the friends followed Emma's journey. "Now, let's think about lunch," Mr. Diaz continued. "When Alex takes a bite of his mango, he's enjoying the energy from the sun. The mango tree used sunlight to make that delicious fruit. Energy from the sun is in the food we eat!"

As the day unfolded, the friends strolled through the town, noticing the wind gently swaying the trees. "The wind carries energy too," explained Mr. Diaz. "It can make the branches dance and even turn the blades of a windmill. That's energy causing a change in the movement of things around us."

Excitement filled the air as the friends entered their classroom. Mr. Diaz pointed to the clock on the wall. "The ticking sound you hear is because of energy – mechanical energy. It's like a tiny engine inside the clock that makes it tick, showing the passage of time.

The adventure continued with Mia picking up her pencil. "When Mia writes with her pencil, she's using energy from her muscles. But did you know the pencil itself has stored energy? When she writes, she's transforming potential energy into kinetic energy, causing a change on paper."

As the school day came to an end, the friends gathered their belongings. Mr. Diaz smiled, "From the sunrise to the ticking clock, energy is all around us. It brings light, grows our food, moves the wind, and powers our tools. Now, think about the changes you've noticed today and how energy played a part in each one."

With a newfound understanding, the 4th-grade friends left the classroom, excitedly chatting about the incredible journey into the world of energy and the changes it brings to their everyday lives.

2. Worked Example

The purpose of telling the story "Whispers of Energy: A Day in a World of Wonders" is to provide an engaging and accessible narrative that introduces to the 4th-grade students the concept of energy being everywhere and its ability to cause changes. Through the story, the aim is to make the abstract idea of energy more relatable and understandable for young learners by weaving it into relatable, everyday experiences.

3. Lesson Activity

Energy Chain (10-15 minutes)

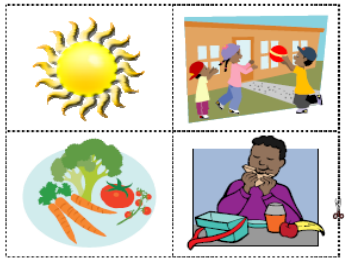
By building chains of energy transformations students see that the Sun is a source of energy for living and non-living things. Energy transformations allow us to turn some less useful forms of energy into forms of energy that we need in everyday life.

Instructions:

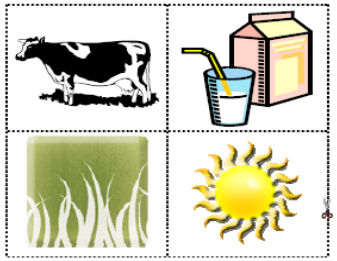
1. Select one or more chains (see below for descriptions of chains 1 to 4). Distribute the associated activity sheets to students.
2. Have students cut out each picture.
3. Have them arrange the pictures starting from the source of the energy onto its last energy transformation.
4. Have them glue the remaining 3 pictures in the correct order.

ENERGY CHAIN ACTIVITY

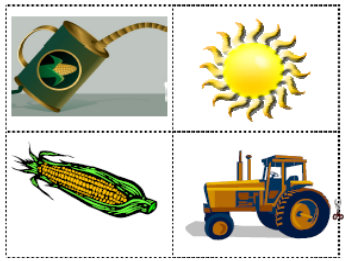
Chain 1



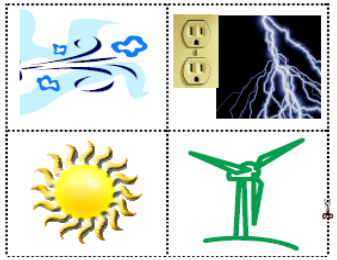
Chain 2



Chain 3



Chain 4



DAY 3

Day or Night?

Using the given table, write or draw an activity you do that uses energy in the first column. Draw a sun in the next column beside the activity if you do this activity during the day. Draw a moon in the next column beside the activity if you do this activity in the evening or at night.

Activity	Day or night?

Process Question:
Do you save more energy during the day or night?

_____
_____
_____

DAY 3
SUB-TOPIC 2: Sources and Uses of Light Energy

1. **Explicitation**
   Brainstorming Session
   Students could brainstorm a list of objects that are sources of light. The teacher could also let them distinguish if the object that they have identified emits their own light and those that require an external source of light to be seen. This is an opportunity for teachers to distinguish between objects that emit light and objects that can only be seen when light reflects from them and into the eyes of the viewer.

2. **Worked Example**
   The teacher can address common misunderstandings about light sources that students may have. For example, students might think the window is a source of light or that the moon makes its own light. It's important not to ignore these ideas. Changing the explanations students have come up with to understand their world takes a lot of time, evidence, and hands-on experience.

3. **Lesson Activity**

   Light Investigation
   Instructions: Investigate possible sources of light in the home and school and record your observations using the table below. Put a check mark on the corresponding box of your answer. For example, if the object is a light source,

check the light source box next to the object. If not, check the Not a light source box.

Object	Predictions		Observations		Conclusion	
	Light Source	**Not a light source**	**Can see light**	**Cannot see light**	**Light Source**	**Not a light source**
Ball						
Mirror						
Lamp						
Chair						
etc						

You may give this as an assignment or a group activity, as long as the results should be reported in the class.

Students are encouraged to talk about the advantages and disadvantages of being exposed to light at home and school. On the positive side, light sources help us see in dark places, and sunlight exposure can boost our vitamin D production. However, some light sources can have health effects. Students should be advised, for instance, about the potential risks of prolonged sun exposure and ways to prevent health issues like sunburn and eye strain from looking at bright lights.

D. Making Generalizations

DAY 4

1. Learners' Takeaways

Values Integration: Saving Energy! (activity)
A lot of energy is wasted by using more than we need. Saving energy means using less energy by not wasting it and using only the energy we need.

How can you save energy?

_____
_____
_____

In this activity, let the students answer the following questions on a piece of paper. Then, you can group or pair them with their seatmate to share their answers. Invite volunteers to share their answers in front.

	I already save energy by: _____ _____ _____ In the future, I will try to save energy by: _____ _____ _____ **2. Reflection on Learning** Share your answers in the Saving Energy! Activity to a group or in the class.	

IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION		**NOTES TO TEACHERS**
A. Evaluating Learning	**1. Formative Assessment (20 minutes)** **I. Multiple Choice** Read carefully the questions below. Choose the correct answer from the choices below each question. Encircle the letter corresponding to the correct answer. 1. What happens to energy when it is transformed? a. It disappears. b. It becomes louder. c. It changes from one form to another. d. It turns into water. 2. When people use our natural resources wisely, they are _____ our natural resources. a. Renovating b. Condensing c. Conserving d. Pollinating	**Answer Key:** Test I 1. c 2. c 3. c 4. a 5. a Test II 1. True 2. False 3. True 4. False 5. True

3. Which sentence is not true about heat energy (thermal energy)?
   a. Heat can only move from warm to cool place.
   b. Heat energy can be felt as warmness.
   c. Heat moves from cool to warm place.
   d. Heat can change states of matter.

4. Which of the following is an example of light energy being used for communication?
   a. Traffic lights
   b. Microwave oven
   c. X-ray machine
   d. Laser surgery

5. Which of the following sources of light is natural?
   a. Sun
   b. Lamp
   c. Candle
   d. Flashlight

II. True or False. Read carefully the statements below. Write True if the statement is true; otherwise, write False on the blank space before each number.

__1. The Sun is the main source of energy on Earth.

__2. Energy exists only in certain places, not everywhere.

__3. Too much exposure to sunlight will harm our body.

For item no. 4, please refer to the images below.

<table>
<tr><td></td><td colspan="3"> 

__4. The correct order of energy transfer is: sun → an eating kid → kids playing → vegetables.

__5. Appliances such as electric fans should be turned off when they are not used.</td><td></td></tr>
<tr><td rowspan="4">B. Teacher's Remarks</td><td>Note observations on any of the following areas:</td><td>Effective Practices</td><td>Problems Encountered</td><td rowspan="4"></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></td><td>others</td><td></td><td></td></tr>
</table>

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