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DepED
DEPARTMENT OF EDUCATION

Lesson Exemplar for Science

Quarter 3
Lesson
8

Lesson Exemplar for Science Grade 4
Quarter 3: Lesson 8 (Week 8)
S.Y. 2024-2025

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SCIENCE/QUARTER 3/ GRADE 4

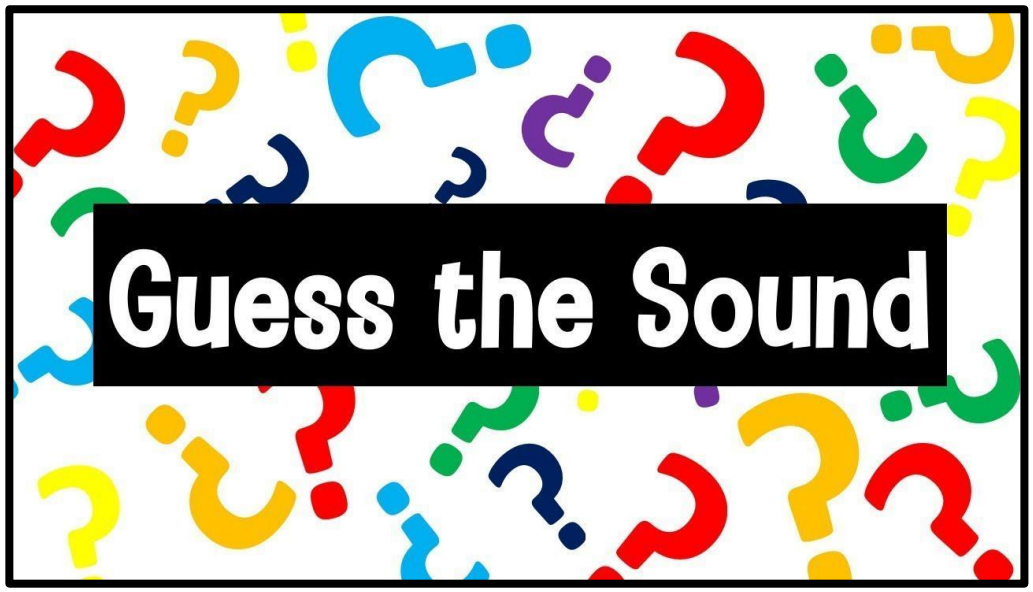
I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	*The learners learn that:* 1. Science processes help in observing and predicting how things move. 2. Gathering scientific information helps explain the behavior of objects and materials. 3. Energy is present whenever there 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: Describe how heat energy can cause changes, such as cooking food, melting ice, or heating a room.* *Lesson Objective 4: 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 heat energy, such as stoves, ovens, heaters, and the sun.* *Lesson Objective 3: 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

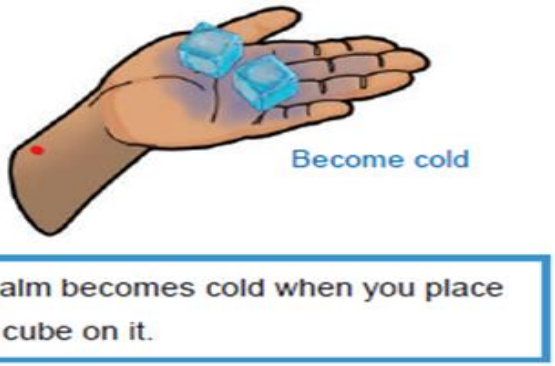
II. LEARNING RESOURCES

- 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
- Thermal Energy - Library For Kids
- EvidenceofEnergy.pdf (uwsp.edu)
- keep-exploring-heat.pdf (uwsp.edu)

III. TEACHING AND LEARNING PROCEDURE		**NOTES TO TEACHERS**
A. Activating Prior Knowledge	**DAY 1** **1. Short Review (10 minutes)** *Guess the Sound Game* The YouTube video is about guessing what causes the sound being played. The learners may be divided into groups for this activity as they try to correctly guess the sound.	The goal of this game is to review the learners of the importance of sound energy, especially in communication. After the game, remind students that sound energy carries a wealth of information as we have learned to associate specific sounds with objects, actions, or environments. Here are the categories and sounds with timestamps so you

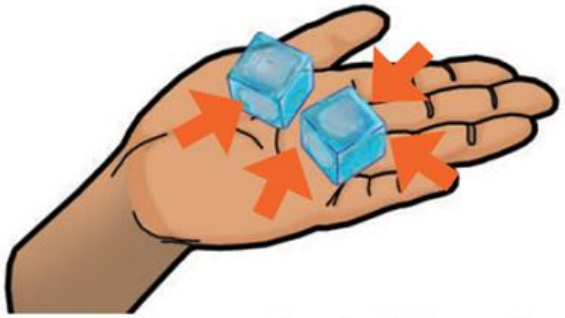
	 Guess the Sound Game | 20 Sounds to Guess (youtube.com) **Process Questions:** 1. Which sounds were easiest and hardest to guess? Why? Did the category of the sound (household and animal) make a difference? 2. How can different sounds create different moods or emotions? For example, how does a plate smashing on the floor make you feel different from that of a running faucet?	can easily jump to a specific part. Feel free to play any sound from the categories, as long as the learners are able to identify it. **Household Sounds:** Flushing (0:23) A Plate Smashing (1:19) Vacuuming (1:29) Running Faucet (2:02) Clock Ticking (2:18) Electric Drill (4:30) **Animal Sounds:** A Chicken (1:46) Ducks (2:32) A Pigeon (3:26) A Crow (4:43) Sheep (4:54) Cat Purring (3:41)
B. Establishing Lesson Purpose	**1. Lesson Purpose (20-25 minutes)** Use the activity entitled “Color Chaos: Unlocking the Secret of Heat”. By observing how food coloring disperses more rapidly in hot water compared to cold water, students can grasp the concept that heat increases molecular motion and thus causes changes.	In scientific terms, heat refers specifically to the transfer of thermal energy from one object or system to another due to a temperature difference. Thermal energy, on the other hand, is the total kinetic energy of the

	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. ● **Heat -** transfer of thermal energy from one object or system **Thermal energy** - the energy inside of something because of the movement of its particles By observing how food coloring disperses more rapidly in hot water compared to cold water, students can grasp the concept that heat increases molecular motion and thus causes changes. **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. ● **Heat -** transfer of thermal energy from one object or system ● **Thermal energy** - the energy inside of something because of the movement of its particles	particles within an object or system. Therefore, while "heat energy" is often used interchangeably with thermal energy in casual conversation, it's more accurate to use the term thermal energy when referring to the energy contained within an object or system.

C. Developing and Deepening Understanding	**DAY 2** **Sources and Uses of Heat Energy** **1. Explicitation** ● Based on the activity "*Color Chaos: Unlocking the Secret of Heat* ", ask the students why they think the food coloring moved faster in the hot water. ● Explain that heat is a form of energy, and it causes the tiny particles (molecules) in the water to move faster. ● The faster the molecules move, the more they bump into the food coloring and spread it around. ● Relate this to real-life examples like how heat helps dissolve sugar in tea or hot chocolate. ● For the next activity, let the students touch the glass/jar containing the hot water, and the glass/jar containing the cold water. (You can also use ice cubes and place them on their palms). ● Let the pupils record what they felt when they touched the ice and the cup of warm water. **2. Worked Example** ● Images below show the expected results from the activity.  Image from: g5_science_text_01.pdf (jica.go.jp)	Caution: Be sure to supervise the use of hot water and ensure it's not too hot for students to touch.

	 Your palms become warm when you hold a cup of warm water. Image from g5_science_text_01.pdf (jica.go.jp) • Explain that heat is a form of energy and that it always moves from warmer objects to cooler objects.  Image from g5_science_text_01.pdf (jica.go.jp)	You can introduce the concept of conduction and convection in this section.

- Ask students why their hands did not become warm when they had ice in their palms and in what direction the heat moved.



Heat moves from our palms to the ice cube.

Image from g5_science_text_01.pdf (jica.go.jp)

- Ask students in what direction the heat moves when they touch the cup of warm water.

Heat moves from the cup of warm water to our palms.

Image from g5_science_text_01.pdf (jica.go.jp)

	DAY 3 **3. Lesson Activity** *Heating the Buildings and Homes in our Community Activity* Riza was curious after her science class about which source of heat was most popular in her neighborhood for cooking. She asked her neighbors if they heated their homes or work locations with either gas, oil, wood, or electricity. Just like Riza, find out the sources of heat energy in your community and think about how the information you learn connects to other communities.	Use the activity on "Heating the Buildings and Homes in our Community Activity." Let the students do a little survey in their neighborhood on the sources of heat energy. Categorize the sources of heat energy whether it is wood, electricity, oil, or gas.
C. Making Generalizations	**1. Learners' Takeaways** Why do we need to stay away from intense heat? What could be the result if you leave your mobile phone, laptops, and other appliances charging unattended? What would happen if you leave the food you are cooking unattended? Why do our parents always tell us to close the valve of our LPGs after cooking? **2. Reflection on Learning** Let the students share their answers in the questions above.	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.

IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION		**NOTES TO TEACHERS**
A. Evaluating Learning	**DAY 4** **1. Formative Assessment** **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. Which of the following is the BEST example of heat energy?
    a. A ball rolling down a hill
    b. A light bulb glowing brightly
    c. A pot of water boiling on a stove
    d. A fan blowing cool air
2. Which of the following is one way that heat is used in our homes?
    a. To power the TV
    b. To run the refrigerator
    c. To cook food on the stove
    d. To light up the room
3. Which sentence is not true about heat (thermal energy)?
    a. Heat can only move from a warm to a cool place.
    b. Heat energy can be felt as warmness.
    c. Heat moves from a cool to a warm place.
    d. Heat can change states of matter.
4. When we feel cold, we sometimes wear warm clothes. How do warm clothes help us feel warmer?
    a. They create heat energy.
    b. They trap our body heat.
    c. They absorb heat energy from the air.
    d. They reflect heat energy back to our body.
5. When you touch a hot pan, heat energy moves from _____.
    a. the pan to your hand
    b. your hand to the pan
    c. the air to your hand
    d. the air to the pan

Answer Key:

Test I

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

<table>
<tr><td rowspan="5">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="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>C. 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 learners play in my lesson?
What did my learners 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>
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