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DepED
DEPARTMENT OF EDUCATION

Lesson Exemplar for Science

Quarter 3
Lesson
7

Lesson Exemplar for Science Grade 4
Quarter 3: Lesson 7 (Week 7)
S.Y. 2024-2025

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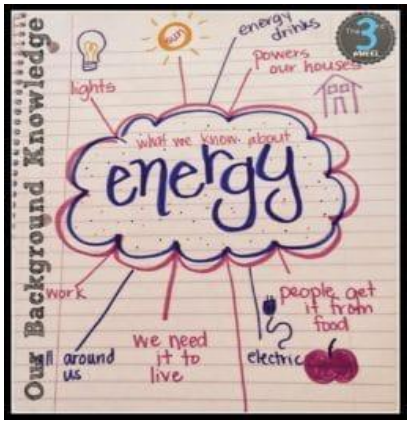
SCIENCE/QUARTER 3/ GRADE 4

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: Identify and distinguish between different forms of energy, including light, sound, and heat energy.* *Lesson Objective 2: Explain how sound energy can cause changes, such as producing sound in musical instruments or conveying information through communication.* *Lesson Objective 3: 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 3: Observe sources of sound energy, including musical instruments, electronic devices, and natural sounds, in different settings.* *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. Sources and Uses of Sound Energy 2. How to protect oneself from intense sound
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

- Canada Agriculture and Food Museum. (n.d.). Energy. Ingenium Canada - Agriculture. https://ingeniumcanada.org/agriculture/education/educational-activity-kits/energy?fbclid=IwAR2YtVj7TLSrALxJLRrFplvNAbcXxJep6wtD7BR4jt5drrDGoHTBoupHMxc
- 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	**DAY 1** 1. **Short Review** We start the lesson with a short activity on making a concept map. You may explain what a concept map is and how it is used. **A. Energy Concept Map (15 minutes)** The students will be asked about anything they know about energy. Then, the teacher will make a concept map on the board based on the answers of the students. Example:  Credit: Image sourced from differentiated teaching website.	Guide the students in reviewing their knowledge of energy. Ask probing questions that may help in eliciting more answers from the students. You may call the pupils one by one, or you may group them first, based on the size of the class.

B. Establishing Lesson Purpose	**DAY 1** **1.Lesson Purpose (5 minutes)** Show the image below of two children talking and whispering with each other. Ask them these process questions: 1. What do you think are the kids doing? 2. How do they communicate with each other? 3. What is sound? 4. How do we use sound to speak and hear? 5. Can you give examples of how animals use sound to communicate?  Credit: Image sourced from https://unsplash.com/	For the Lesson Purpose, prompt them to mention the concept of sound using the process questions. Our purpose is to guide them in understanding that sound energy is important in our everyday lives.

C. Developing and Deepening Understanding	**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. • **Sound Energy -** a form of energy we can hear. It is an energy created when matter vibrates. Vibrations are very fast back-and-forth movements that you cannot see but can sometimes feel. **SUB-TOPIC 3: Sources and Uses of Sound Energy** **1. Explicitation (5 minutes)** • Let the students perform at least three (3) different claps in the Youtube video: https://www.youtube.com/watch?v=m3yRRMhrMdU • Ask the following questions: *What happens when you clap your hands?* *How does the force and speed of your clap affect the sound?* **2. Worked Example (5 minutes)** Let the pupils answer the following questions using the image below. • Can the students hear each other in the picture? • If you think they can, how does that happen? If you think they can't, why not? • Look at the picture. Are there any signs showing if sound is moving between the students?	

Image from: https://sciencing.com/make-walkie-talkie-tin-cans-string-12060286.html

DAY 2

After hearing the answers of the pupils, provide a copy of the reading material entitled "The Stuff in our World"

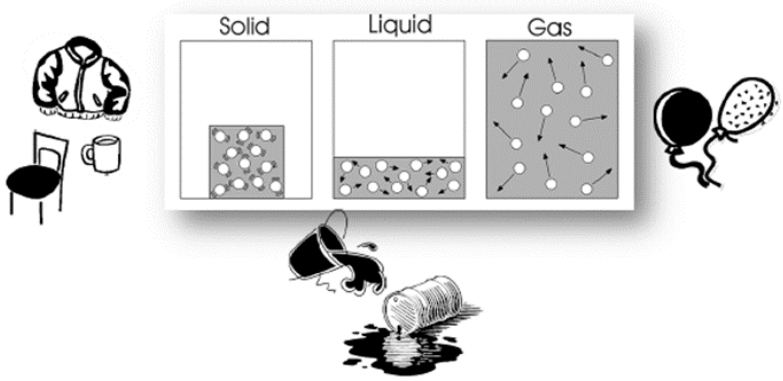
The "Stuff" in our World

Things in our world take up space and have some weight. There are three common types of stuff, or **matter**: solid, liquid, and gas. A jacket, chair, and cup are all examples of solids. You can't put your hand through a solid. If you had microscope eyes, you would see tiny particles in solids are packed together tightly.

Water, juice, and oil are all examples of liquids. We can move our hands through liquids, like swimming in a pool. Tiny particles in liquids are not packed as tightly as solids so we can move in between them.

Two examples of gases are the air that we breathe and helium in birthday balloons. We can also move through gases. Particles in gases are not close

together. The spacing of the particles makes sound to travel much faster through a solid than a gas.



1. Lesson Activity

Before introducing the lesson on sound energy and its sources, let the learners watch the YouTube video below:

How Sound Travels Across Different Mediums (youtube.com)

Knock, Knock! Who's There?

Directions: Put your ear on the table. Knock. Record observations about the sound you hear. Then lift your head with your ears in the air. Knock with the same force. Do you hear something different? In which condition do you hear a louder sound?

Soft Knock using less force	**CONDITIONS**	
	Ear on the table	**Ear in the air**

Prepare the students for the next activity by asking the following questions:

- *How do you think sound energy travels through matter?*
- *Which matter, solid or gas, does sound travel through best? Why do you think so?*

Caution the pupils not to knock very hard as it can damage their eardrums. Also, incorporate in the lesson the

Describe the sound you hear		

<u>Hard</u> Knock using more force	**CONDITIONS**	
	Ear on the table	**Ear in the air**
Describe the sound you hear		

DAY 3

Sound Safari: Exploring Sound Energy at Home and School

Ask students to spend some time at home "listening" for different sources of sound energy. They should create a list in their notebooks, dividing it into categories like people/animals, nature, household objects, electronics & gadgets, and others.

Source of Sound Energy	People/Animals	Nature	Household Objects	Electronics & Gadgets	Other

importance of protecting oneself from too much sound.

Explain that sound energy is produced when objects vibrate. The vibrations create waves of energy that travel through the air, until they reach our ears. Our ears then convert these waves into sound signals that our brain can understand

Process Questions:

1. What were the most common sources of sound energy?
2. Were there any surprising sounds?
3. How do we use sound energy in different ways?
4. Are there any sounds that are harmful to our ears?

D. Making Generalizations

1. Learners' Takeaways

The Sound of Our Lives: An Essay on Sound Energy

Begin by leading a class discussion about different sources of sound energy. Encourage students to share examples they encounter in their daily lives (e.g., musical instruments, voices, car horns, nature sounds, electronic devices). Have each student select one source of sound energy that they find particularly interesting or relevant to their lives. Guide students in conducting research on their chosen sound source. They should aim to answer questions like:

- Who or what creates this sound? Is it a natural phenomenon, a human invention, or something else entirely?
- How is this sound produced?
- Who or what creates this sound?
- How does this sound affect people's lives?
- Are there any health considerations related to exposure to this sound?

Reflection on Learning

Let the learners share their essays to the class. Encourage discussion and reflection on the diverse ways sound energy influences our world.

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 an example of a source of sound energy? a. A light bulb glowing b. A stationary car c. A glass on a table d. A guitar string vibrating 2. Sound is made when things: a. Melt b. Vibrate c. Freeze d. Disappear 3. We hear sounds because our ears: a. Catch sound waves b. Make light waves c. Store energy d. Change color 4. Which of these is an example of sound energy helping us stay safe on the road? a. A car horn b. A whisper c. A clap d. A sneeze	**Answer Key:** Test I 1. d 2. b 3. a 4. a 5. d Test II 1. False 2. True 3. False 4. True 5. False

	5. Sound travels fastest through: a. Air b. Water c. Jelly d. Steel **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. Sound travels faster through air than through water. ___2. We can use sound energy to communicate with each other. ___3. Sound can only travel through solids, not liquids or gases. ___4. Musical instruments create sound energy through vibrations. ___5. Sound energy can be harmful if it's too loud.			
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 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?*	