4

Science 4

Microlearning Module

QUARTER 3 – Module 10

Sound, Light and Heat Energy

Microlearning Module

REGION XII - DIVISION OF SULTAN KUDARAT

Science 4
Microlearning Module (MLM)
Quarter 3 – Module 10: Sound, Light and Heat Energy
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MICROLEARNING MODULE

Name: _____Grade & Sec: _____ Score: _____

Subject: Science 4 Quarter: 3 MLM No. 10

Teacher: _____

Learning Competency: **The learners identify that energy is something that can cause change including light, sound, and heat energy.**

Sound, Light, and Heat Energy

A. Look Back!

Activity A.1. Am I Right or Wrong?

Directions: On a separate sheet of paper, write **TRUE** if the statement is correct and **FALSE** if it is wrong.

1. The light from the sun affects our eyes and skin through loud sounds.
2. If you shine the flashlight on an object, the object will cast shadows.
3. Loud noises can affect our ears without direct contact by tickling our skin.
4. Sharing energy through touch affects each other without direct contact.
5. Sound waves travel fastest through gases, which best describes the nature of sound waves.
6. Water evaporating from a pond is an example of an object that affects each other without direct contact.
7. Sound waves are mechanical vibrations that propagate through a medium such as air, water, or solids.
8. The rain falling from the clouds best exemplifies how objects can affect each other without direct contact.
9. Magnetic attraction or repulsion is a phenomenon that occurs when two magnets are brought near each other without direct contact.
10. In everyday life, A plant growing on a window is a scenario that best illustrates how light from the sun affects objects without direct contact.

B. What's New?

Activity B.1. Let's Put Energy on it!

Directions: Identify what kind of energy is being changed in the following examples. Write **S** on a separate sheet of paper if it is sound, **L** if it is light, and **H** if it is heat energy.

_____ 1. boiling water
_____ 2. ringing a bell
_____ 3. playing a flute
_____ 4. striking a drum
_____ 5. ironing of shirts
_____ 6. toasting a bread
_____ 7. drying of clothes
_____ 8. lighting a match stick
_____ 9. switching the lights on
_____ 10. keeping the flashlight on

C. What Is It?

Energy is the ability to do work on another object. It comes in many forms including sound energy, light energy and heat energy.

Sound Energy is a form of energy that is associated with the vibrations of matter. It is a type of mechanical energy, which means it requires a medium to travel through. Sound energy is produced when an object vibrates, creating a pressure wave which the human ear can detect.

These pressure waves travel through the air as waves of vibrating air particles. These waves can also travel through other mediums like water, metal, or wood. When these waves reach our ears, they vibrate our eardrums, and our brains interpret these vibrations as sound.

Examples of sound energy include voices, musical instruments, and the noise made by wind, rain, or a running engine. Sound energy is used in many areas of daily life, including communication, music, and even medical diagnostics with tools like ultrasound machines.

Light Energy refers to the form of energy that is associated with electromagnetic radiation in the visible spectrum. Its main source is the sun. It is a type of energy that enables us to see and perceive the world around us. Light energy is produced by the vibrations of electrically charged particles, such as electrons, which generate electromagnetic waves.

Light energy is characterized by its various properties, including intensity (brightness), wavelength (color), and frequency. It travels in the form of waves, known as electromagnetic waves, which consist of alternating electric and magnetic fields that oscillate perpendicular to each other.

Light energy can be emitted by various sources, such as the Sun, light bulbs, or flames. It can also be reflected, refracted, or absorbed by different objects and surfaces. When light interacts with matter, it can be transformed into other forms of energy, such as heat energy.

Light energy plays a crucial role in our daily lives. It allows us to see objects, colors, and shapes, and it is essential for vision. Additionally, light energy is used in various applications, including photography, fiber optics, telecommunications, and many scientific and technological fields.

Heat Energy also known as thermal energy, is a form of energy that is associated with the motion of particles within a substance. It is the energy transferred between objects or systems due to a temperature difference. Heat energy flows from areas of higher temperature to areas of lower temperature until thermal equilibrium is reached.

Heat energy is a result of the random motion of atoms, molecules, or ions in a substance. As these particles move, they collide with each other, transferring kinetic energy. The total kinetic energy of all the particles in a substance represents its heat energy.

D. Let's try!

Activity D.1. Sound Energy

Materials needed:

1. Rubber band
2. Empty tissue box or a small container

Directions:

1. Stretch the rubber band between your fingers, creating tension.
2. Secure one end of the rubber band to the tissue box or container.
3. Pluck the rubber band with your other hand.
4. Observe the sound produced by the vibrating rubber band.

Guide Questions:

1. What happens when you pluck the rubber band?
2. How would you describe the sound produced by the rubber band?
3. Does the sound change if you stretch the rubber band?
4. Can the pitch or tone of the sound changes by stretching the rubber band?
5. What other materials or objects could you use instead of a tissue box or container to create different sounds?

Activity D.2. Light Energy

Materials needed:

flashlight

batteries

Directions:

1. Insert the fully charged batteries into the flashlight.
2. Turn on the flashlight.
3. Observe the light produced by the flashlight.
4.

Guide Questions:

1. What happens when you turn on the flashlight?
2. What type of energy is being converted into light energy in this experiment?
3. How does the flashlight produce light?
4. Can you think of other sources of light energy aside from a flashlight?
5. How did the low-charged batteries affect the brightness of the light coming from the flashlight?

Activity D.3. Heat Energy

Materials needed:

lighted candle

piece of paper

Directions:

1. Light the candle and let it burn for a few moments to establish a steady flame.
2. Hold the piece of paper near the flame, but not too close to avoid burning it.
3. Observe any changes that occur to the paper due to the heat produced by the candle flame.

Guide Questions:

1. What happens to the piece of paper when it is held near the candle flame?
2. How would you describe the heat produced by the candle flame?
3. Can you feel the heat radiating from the flame? Compare it to the surrounding air.
4. What other materials or objects could you use instead of paper to test the heat produced by the candle flame?
5. How does the distance between the flame and the paper affect the amount of heat transferred?

E. Let's Evaluate

Directions: Choose the best answer. Write your answers on a separate sheet paper.

1. Which form of energy is produced when a guitar string is plucked?
   A. heat energy
   B. light energy
   C. sound energy
   D. all of the above
2. When a light bulb is turned on, what type of energy transformation occurs?
   A. heat energy
   B. light energy
   C. sound energy
   D. all of the above
3. What type of energy is produced when a match is lit?
   A. heat energy
   B. light energy
   C. sound energy
   D. all of the above
4. How are you going to produce a sound through guitar?
   A. by looking at it
   B. by striking its body
   C. by holding it upwards
   D. by strumming its strings
5. How are you going to apply heat energy in the wet clothes?
   A. hang it inside the closet
   B. fold it and put it in a cabinet
   C. let it dry in the laundry basket
   D. hang the clothes outside with exposure from the sun

6. When you light a candle, what energy transformations are produced?
   A. heat energy only
   B. light energy only
   C. heat and light energy
   D. light and sound energy
7. Why does a warm object feel hot when touched?
   A. due to the emission of light waves
   B. due to the transfer of heat energy
   C. due to the reflection of light waves
   D. due to the absorption of sound waves
8. How is light energy produced in a light bulb?
   A. through the emission of light energy
   B. through the reflection of heat energy
   C. through the transfer of sound energy
   D. through the absorption of sound waves
9. How is heat energy generated in fire?
   A. by touching it
   B. by looking at it
   C. by throwing water on it
   D. by lighting it using a match stick
10. How does sound energy travel through the air?
   A. through the vibration of air particles
   B. trough the reflection of heat energy
   C. through the emission of light waves
   D. through the absorption of heat energy

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Answer Key

Science Grade 4

Quarter: 3 Module: 10

A. LOOK BACK!

Activity A.1.

1. F	6. T
2. T	7. T
3. F	8. T
4. F	9. T
5. F	10. T

B. WHAT'S NEW

Activity B.1

1. H	6. H
2. S	7. H
3. S	8. L
4. S	9. L
5. H	10. L

D. LET'S TRY

Activity 1

Answers may vary.

Activity 2

Answers may vary

Activity 3

Answers may vary

E. Let's Evaluate

1. C
2. B
3. B
4. D
5. D
6. C
7. B
8. A
9. D
10. A

DISCLAIMER

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