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Republic of the Philippines
Department of Education
NATIONAL CAPITAL REGION
Misamis Street, Bago-Bantay, Quezon City

UNIFIED SUPPLEMENTARY LEARNING MATERIALS
(USLeM)

SCIENCE 6
Week 5

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LESSON 1: Energy Transformation

EXPECTATIONS

Different forms of energy are everywhere. Energy changes from one form to another, which is referred to as energy transformation.

This Unified Supplementary Learning Material will help you demonstrate energy transformation in the following instances:

a. Heat to light energy
b. Electrical to sound energy
c. Electrical to light to heat energy
d. Electrical to sound to heat energy

You will also construct a diagram showing energy transformation in objects you can find in your household.

PRETEST

Multiple Choice

Directions: Read each item carefully and choose the letter of your answer.

1. What can you infer when you switch on your rice cooker and the electrical energy is changed into heat energy?
   A. Energy can be wasted.
   B. Energy can be created.
   C. Energy can be destroyed.
   D. Energy can be changed.

2. In which situation can we find electrical energy transformed into sound energy and heat energy?
   A. When you watch a movie on the television for a long period
   B. When you switch the electric fan on
   C. When you ride a tricycle
   D. When you switch on your flat iron

3. Which energy transformation happens when you switch on the projector?
   A. electrical energy ⇨ light energy ⇨ heat energy
   B. electrical energy ⇨ heat energy ⇨ light energy
   C. electrical energy ⇨ sound energy ⇨ heat energy
   D. electrical energy ⇨ light energy ⇨ sound energy

4. Which energy transformation happens when you switch on the fluorescent lamp?
   A. electrical energy ⇨ light energy ⇨ sound energy
   B. electrical energy ⇨ heat energy ⇨ sound energy
   C. electrical energy ⇨ light energy ⇨ heat energy
   D. electrical energy ⇨ heat energy ⇨ light energy

5. Which energy transformation happens when you switch on the electric iron?

A. electrical energy ⇨ light energy
B. electrical energy ⇨ heat energy
C. electrical energy ⇨ sound energy
D. electrical energy only

LOOKING BACK TO YOUR LESSON

Directions: Locate the given materials/devices in the grid then group them according to the kind of energy they produce.

S	X	B	V	S	V	D	T	Y	P	U	M	L	L
C	A	N	D	L	E	I	T	E	Q	T	E	F	I
T	B	N	T	U	F	R	Z	W	B	O	C	P	G
W	V	T	T	N	V	O	P	E	C	A	H	F	U
D	Y	H	S	D	P	N	X	U	N	S	A	S	I
R	S	P	I	A	N	O	W	G	S	T	N	S	T
E	L	E	C	T	R	I	C	A	L	E	I	W	A
N	A	B	E	S	M	O	T	I	O	R	C	Q	R
F	L	A	S	H	L	I	G	H	T	G	A	K	L
H	E	A	T	I	T	H	E	R	M	A	L	O	N

candle **toaster** **guitar**
piano **flashlight** **iron**

Light Energy	Sound Energy	Heat Energy
1.	1.	1.
2.	2.	2.

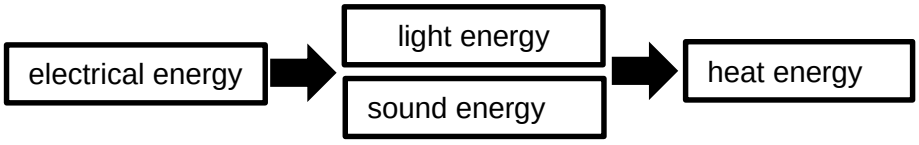
BRIEF INTRODUCTION

Our everyday life relies heavily on energy. All our electrical appliances are put to use with the electricity supplied to our homes. We communicate with each other with the sound we hear. When we switch on the electric bulbs we use at home, electricity flows on the wire and provides light in our house. When using the electric stove, heat is transferred to the pan that we use for cooking. All electrical appliances that we use at home transform energy from one form to another which is a big help in our daily lives.

In using these appliances, we note that heat is produced in the energy transformation.

Look at the diagram below.

Stereo System Sound Volume - Free vector graphic on Pixabay



In this example, we can see that using the radio component the electrical energy transforms to light and sound to heat energy.

UNIFIED SUPPLEMENTARY LEARNING MATERIALS
Grades 6 SCIENCE

ACTIVITY 1

Directions: Use the sequence diagram below to trace energy transformation. Write the form of energy from the beginning to the end based on the given appliance. Choose your answers below.

Sound Energy	**Light Energy**
Heat Energy	**Electrical Energy**

1. 

electric lamp

Desk Lamp Night - Free vector graphic on Pixabay

2. 

tablet (opening a video lesson)

Emr Emr Electronic Medical Record - Free vector graphic on Pixabay

ACTIVITY 2

"Let's Transform It!"

Study the cartoon below and answer the questions below:

1.On the box below, write a short story based on the cartoon above.

2. What forms of energy can you identify in this situation?

3. Create a diagram showing energy transformation for this situation.

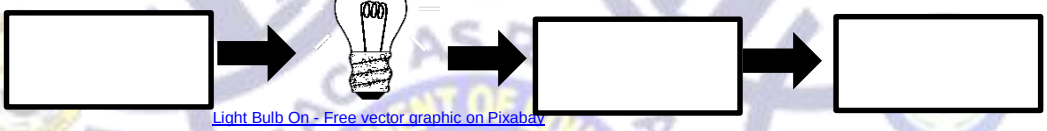
REMEMBER

Energy transformation is the process of converting one form of energy to another. Heat, light, sound, and electrical energy are some of the forms of energy that are present when we use appliances at home. In transforming energy, heat is always produced.

CHECKING YOUR UNDERSTANDING

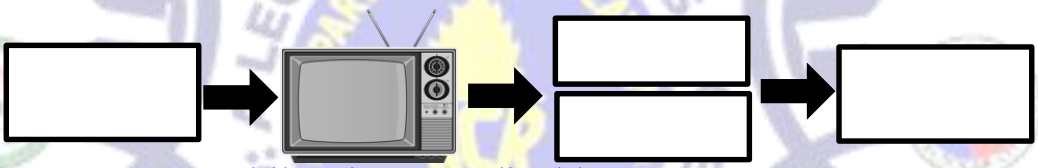
Directions: Fill in the correct energy form in each of the boxes below to show the energy transformation of a light bulb and a microwave oven.

A.



Light Bulb On - Free vector graphic on Pixabay

B.



Television Tv Tube - Free vector graphic on Pixabay

POST TEST

Modified True or False

Directions: Write the word TRUE if the statement is correct and if not, change the underlined word/s to make the statement correct. Write your answer in the space provided.

_____**1.** A television changes <u>electrical energy into sound and light energy</u>.

_____**2.** An electric guitar changes <u>heat energy to sound energy</u>.

_____**3.** A rice cooker changes <u>heat energy to electrical energy</u>.

_____**4.** When you switched on your tablet, it changes <u>heat to light energy</u>.

_____**5**. A light bulb changes <u>electrical energy to light and heat energy.</u>

LESSON 2: Conserving Energy

EXPECTATIONS

We rely on the electrical energy we use every day. Electricity is generated in power plants which mostly burn coal, crude oil, and other fossil fuels. This leads to the pollution of our environment and causes health problems among us because of the harmful gases like carbon dioxide, sulfur dioxide, and nitrogen oxide that are emitted during the process. Hence, we have a responsibility to help conserve our energy to lessen the effects on our environment.

In this lesson, you are going to demonstrate various ways of conserving energy. You are also going to create a marketing strategy for a new product on electrical or light efficiency.

PRETEST

Directions: Draw a smiley face ☺ on the space provided if the statement describes a practice that conserves energy, and a sad face ☹ if otherwise.

_____1. Using Incandescent light in our home

_____2. Cleaning and repairing broken appliances

_____3. Playing games in your tablet while charging it

_____4. Switching off your appliances when you are away from home

_____5. Watching in TV for 10 hours

LOOKING BACK TO YOUR LESSON

Directions: Trace the energy transformation in the computer by filling in the sequence diagram.

BRIEF INTRODUCTION

Most of the time, we make use of our appliances that require electricity. Sometimes, we forget to switch off our electric bulbs for a long time or unplugging our power cables from the gadgets we use. These practices unnecessarily use electricity that otherwise could have conserved. As electricity is generated mostly in power plants, wasteful electrical usage results in an increased emission of toxic fumes that damage our environment. To decrease power consumption and lessen the emission of toxic gases, we need to act to conserve energy and do our part in saving the environment.

ACTIVITY 1 How to Conserve Energy

Problem: What are the different ways by which you can conserve energy?
What to do:

List down three (3) appliances in the first column that you use every day at home. On the second column write the energy transformation involved and on the third column, cite one way to conserve energy while using that appliance. Use the example given as a guide.

Appliance I Use Everyday	Energy Transformation	Ways to Conserve the Energy
Ex: Electric bulb	electrical energy to light energy to heat energy	switching off the lights if not in use/ using LED lights
1.		
2.		
3.		

ACTIVITY 2

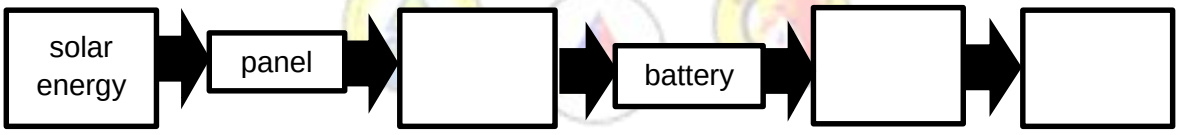
Directions: Read the story below and answer the questions that follow:

Mr. Frank Dela Cruz recently installed solar panels on the roof of his house. These panels are connected to batteries. During the day, the batteries are being charged by these panels. During the night, he uses the electricity stored in the battery to power up all his lights at home.

Questions:

1. What forms of energy can you identify in this story?

2. Show the energy transformation involved by completing the diagram.



3. How does Mr. Dela Cruz conserve energy?

ACTIVITY 3

Directions: Create a marketing strategy to promote the efficiency of using renewable energy devices such as solar panels or windmills to generate electricity that will be used by people to power up their appliances at home. You may do any of the following:

A. Poster
B. Social Media Advertisement
C. Jingle
D. Vlog

Rubric in Rating your Output:

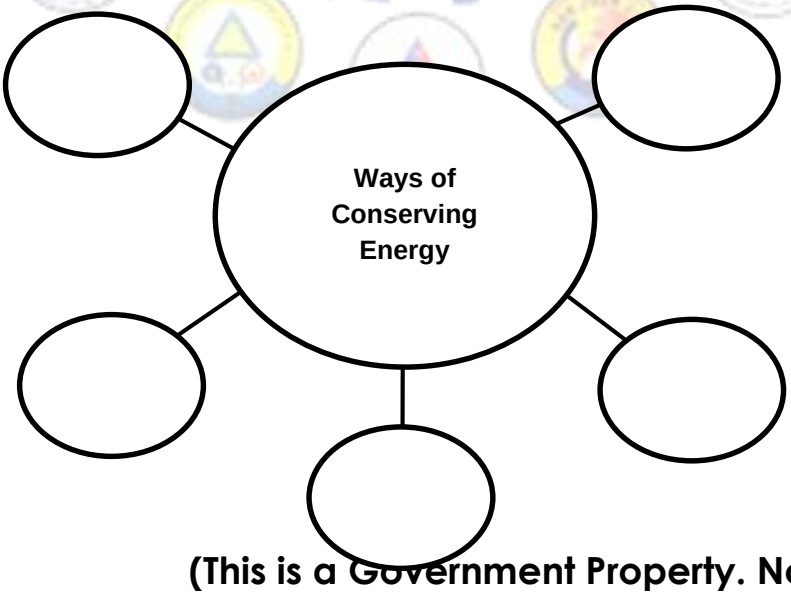
Criteria	Percentage	Rating
Organization	40%	
Content	30%	
Creativity	20%	
Audience	10%	
Total	100%	
Home Learning Partner/Teacher's Feedback:		

REMEMBER

Each of us has a part in conserving energy. You as a learner can contribute by reducing the use of electricity which can benefit the environment, conserve resources, and save lives. Although your electricity saving efforts vary depending on your environment, these small steps become great leaps when multiplied by the total population in millions or even billions.

CHECKING YOUR UNDERSTANDING

Directions: Complete the web graphic diagram by writing the various ways of conserving energy.



POST TEST

Modified True or False

Directions: Write the word TRUE if the statement, is correct and if not, change the underlined word/s to make the statement true. Write your answer in the space provided.

_____**1.** *LED lights* use less energy than fluorescent lamps
_____**2.** Cathode Ray Tubes (CRT) TVs use *less energy* than Organic Light Emitting Diode (OLED) TVs
_____**3.** Frequent washing machine usage *minimizes* the use of electrical energy.
_____**4.** Scheduling of ironing the clothes *maximizes* the energy consumption.
_____**5**. *Inverter* appliances conserve energy.

REFERENCES

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n.d. *BEAM 5 Unit 5 DLP 34: How Electric Energy is Produced*. Department of Education. Accessed February 2021. https://lrmds.deped.gov.ph/detail/6368

Stereo system. Creative Commons. Stereo System Sound Volume - Free vector graphic on Pixabay. *(Retrieved, February 2021)*

Lamp. Creative Commons. Desk Lamp Night - Free vector graphic on Pixabay*(Retrieved, February 2021)*

Tablet .Creative Commons. Ehr Emr Electronic Medical Record - Free vector graphic on Pixabay(*Retrieved, February 2021)*

Light bulb. Creative Commons. Light Bulb On - Free vector graphic on Pixabay *(Retrieved, February 2021)*

Television. Creative Commons. Television Tv Tube - Free vector graphic on Pixabay *(Retrieved, February 2021)*

UNIFIED SUPPLEMENTARY LEARNING MATERIALS
Grades 6 SCIENCE

ANSWER KEY

Lesson 2: Conserving and Using Energy Efficiency

PRETEST

1. ☹
2. ☺
3. ☹
4. ☺
5. ☹

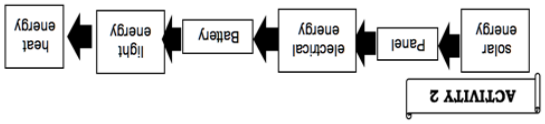
LOOKING BACK TO YOUR LESSON

ACTIVITY 1

Possible answers:

Appliance I Use Everyday	Energy Transformation	Ways to Conserve the Energy
Ex: Electric bulb	electrical energy to light energy to heat energy	switching off the lights if not in use/ using LED lights
1. Television	electrical energy to light energy and sound energy to heat energy	set a screen time/using OLED television
2. Flat iron	electrical energy to heat energy	Schedule the ironing of clothes once a week.
3. Tablet/Cellular phone	electrical energy to light energy and sound energy to heat energy	Do not use it while charging.

ACTIVITY 2



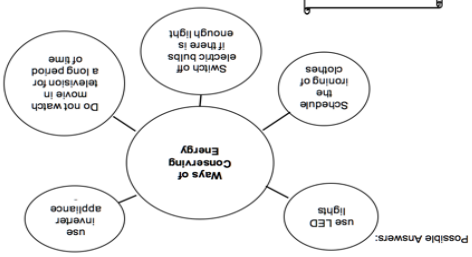
ACTIVITY 3

Rubric in Rating your Output:

Criteria	Percentage	Rating
Organization	40%	
Content	30%	
Creativity	20%	
Audience	10%	
Total	100%	

Home Learning Partner/Teacher's Feedback:

CHECK YOUR UNDERSTANDING



Possible Answers:

POST-TEST

1. TRUE
2. more energy
3. maximizes
4. minimizes
5. TRUE

Lesson 1: Energy Transformation

PRETEST

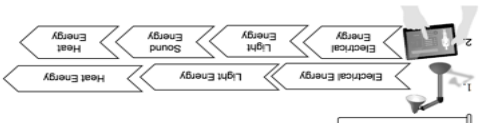
1. D
2. A
3. A
4. C
5. B

LOOKING BACK TO YOUR

S	X	B	V	S		D	T	Y	P	U	M	L	L
T	B	N	T	U	F	R	Z	W	B	O	C	P	G
W	V	T	T	N	V	O	P	E	C	A	H	F	U
D	Y	H	S	D	P	N	X	U	N	S	A	S	I
R	S	P	I	A	N	O	W	G	S	T	N	S	T
E	L	E	C	T	R	I	C	A	L	E	I	W	A
N	A	B	E	S	M	O	T	I	O	R	C	Q	R
E	L	A	S	H	L	I	G	H	T	G	A	K	L
H	E	A	T	I	T	H	E	R	M	A	L	O	N

Light Energy	Sound Energy	Heat Energy
1. Candle	1. Piano	1. Toaster
2.Flashlight	2. Guitar	2. Iron

ACTIVITY 1



ACTIVITY 2

1. Possible answer:

Meisha and Ryen were watching video lessons in Science 6. Unfortunately, Meisha's cellular phone drained out. She decided to attach the battery charger in her phone and plug it in the electrical outlet. After 10 minutes, her phone automatically powers on. She was very happy that she was able to resume watching the video lesson

2. electrical energy
light energy
sound energy
heat energy

3. electrical energy → light energy → sound energy → heat energy

CHECKING YOUR UNDERSTANDING

A. electrical Energy → light Energy → heat Energy

B. electrical energy → light energy → Sound energy → heat energy

POST-TEST

1. TRUE
2. Electrical energy changes to sound to heat energy
3. Electrical energy changes to light and heat energy
3. Electrical energy changes to light energy to heat energy
5. TRUE