

Energy All Around Us

Teacher Facilitation Notes

In General . . .

- Project the slide deck in edit mode—do not show it as a slideshow.
- Hide the speaker notes before projecting. (View/Show Speaker Notes)
- Hide the toolbar. (Click on the up arrow at the right end of the tool bar.)
- Call on students to read the various content shown on slides.
- For each investigation, assemble the needed materials for each group and place in a central location for ease of distribution.
- Duplicate copies of the data sheets for each student.

Materials Needed Per Student:

Explore

Student data sheet

Pencil

Textbook

Sheet of paper

Explain

Science notebook

Scavenger Hunt Graphic Organizer

Other Materials

Flashlight

Table tennis ball

Yarn (30 cm)

Tape

Small Paper or plastic bowls, 4

Scissors

Baggies, 3

Colored Card stock paper, 3 sheets each of 3 different colors

Energy All Around Us

Teacher Facilitation Notes, p. 2

Engage: What is Energy?

- Read the introductory pages with the students. Discuss what students already know about energy and what they might like to learn.
- Watch the video. Discuss the forms of energy as desired.
- Have students complete the matching activity in their data sheets. Discuss.

Explore: What are Some Examples of Energy All Around Us?

- Read and discuss the page about light energy. Conduct the following demonstration:
 - Make the room as dim as possible.
 - Ask students to try to read a page from a book or part of a bulletin board in the room. Is it easy to read in the dim light? Why or why not?
 - Turn on a flashlight and discuss how the flashlight helps us see. Can you read better using a flashlight than you could in the dark room? Why?
 - Turn on the overhead lights and ask students to read again.
 - When was it easiest to read the textbook? What made it easier to read?
 - What is light energy? What are some examples of light energy you might see?
- After discussing sound energy, conduct the following demonstration:
 - Put your fingers light on the front of your throat and hum "Old MacDonald had a Farm". What do you feel? (The vibrations in your throat produce the sound of humming.)
 - Tape a 30 cm piece of yarn to a table tennis ball. Have a child suspend the ball by the string. Make sure the ball is still. Strike a tuning fork and gently touch one of its prongs against the ball. What happens? Why?
 - What is sound energy? What are some examples of sound energy you might hear?
- After discussing thermal energy, have students do the following:
 - Put the palms of your hands against your cheeks. How do they feel?
 - Now rub your hands together back and forth very quickly about 20 times. Quickly touch your palms to your cheeks, What do you notice?
 - What is thermal energy? What are some examples of thermal energy you might feel?
- After discussing mechanical energy, have students do the following:
 - Accordion-fold a sheet of paper to make a paper fan.
 - How can you use the fan to cool yourself on a hot day?
 - What type of energy does the paper fan have as you use it?
 - What is mechanical energy? What are some examples of mechanical energy?

Energy All Around Us

Teacher Facilitation Notes, p. 3

Explain

- Read and discuss the rules of a scavenger hunt.
- Tell the students that the class will be taking a walk around the school and on the playground to look for examples of energy.
- If possible, walk through the cafeteria area so that they can glimpse the cook tops. If that is not possible, just go into the cafeteria and talk about what might be used to cook the food they eat at lunch.
- After students have completed their scavenger hunts, go back to the classroom and discuss what examples of energy they were able to observe.

Elaborate

- Duplicate 3 sets of sorting cards with each set being on a different color of cardstock. Cut apart and place each set in a baggie.
- Duplicate 1 set of the table tent cards on cardstock. Cut apart and fold on the dotted line. (These will be used to identify the containers for each type of energy.)
- Divide the class into three teams. Assign each group a specific color of card. Give each student 1-3 cards, depending on number of students and their ability levels.
- Set out the four bowls in a central location. Place a table tent behind each bowl.
- Follow the directions on the slide to conduct a sorting relay.
- After the relay is finished, check to make sure each card is correctly sorted. If desired, award points for each correct card to the teams.
- Discuss as desired.

Evaluate

- Let students complete the quiz independently.
- Discuss evaluation as desired.

Energy All Around Us

Name: Key

Evaluation

1. Some people like to listen to music on a smart speaker when they are working. What type of energy does a smart speaker mainly produce when it is playing music?

- A Sound energy
- B Thermal energy
- C Light energy
- D Mechanical energy

The picture shows a man playing a drum set. Use the picture to answer questions 2 and 3.



2. What type of energy is needed for the man to hit the drums with the drumsticks?

- F Sound energy
- G Thermal energy
- H Light energy
- J Mechanical energy

3. What type of energy do the drums produce after they are hit with the drumsticks?

- A Sound energy
- B Thermal energy
- C Light energy
- D Mechanical energy

4. Define the word *energy* in your own words.

Answers will vary; accept all reasonable answers students can justify.

Energy All Around Us

Name: Key

Evaluation

Directions: Identify each object as mainly producing light energy, sound energy, thermal energy or mechanical energy. Write the type of energy next to each picture.

A spinning top



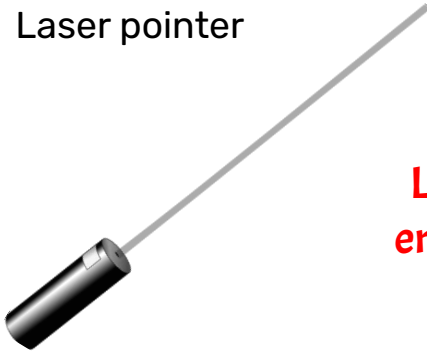
Mechanical energy

Popping popcorn in a microwave oven



Thermal energy

Laser pointer



Light energy

A balloon popping



Sound energy

The crackling of a campfire



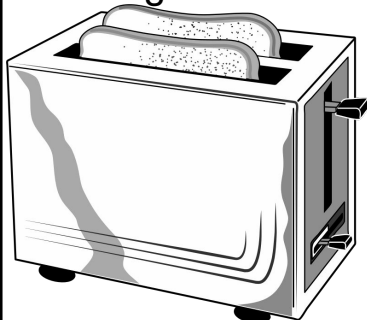
Sound energy

Jumping rope



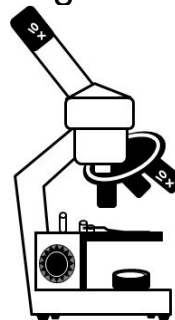
Mechanical energy

Toasting bread



Thermal energy

Using a microscope



Light energy

Energy All Around Us

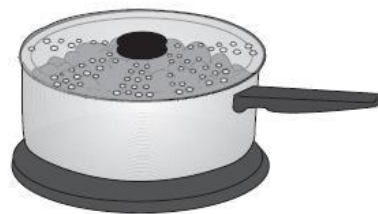
Name: _____

Engage: What is Energy?

Energy is the ability to do work or cause change in matter. Energy is all around us. We can see things because of light energy. It also helps plants grow! We get most of our heat (or thermal) energy from the sun. Thermal energy heats our homes and cooks our food. Sound energy lets us talk to other people, listen to music, and know when our doorbell is ringing! Mechanical energy is the energy found in objects because of their motion or position.

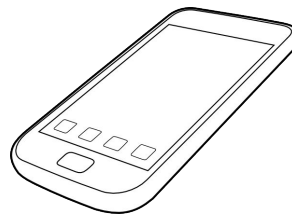
Directions: Draw a line from each picture to the type of energy that best describes what is shown.

1. Light energy



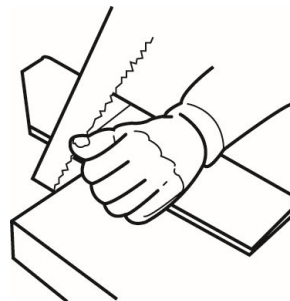
**Boiling
water**

2. Sound energy



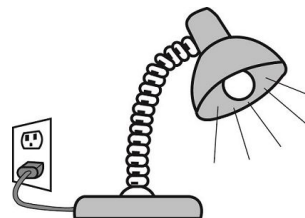
**Talking on
the phone**

3. Thermal energy



**Sawing
wood**

4. Mechanical energy



**Using a
lamp**

Energy All Around Us

Name: _____

Explain: Where Can I See Energy at Work?

An object that produces sound

Something that is moving

Something that produces light

An object that produces BOTH light and sound

Something that is hot

Something that produces BOTH light and thermal energy

An example of light energy

An example of thermal energy

An example of sound energy

An example of mechanical energy

Energy All Around Us

Elaboration: Energy Sorting Relay Cards

Hot Air Balloon



Listening to Music



Flashlight



Melting Ice Cream



Shooting a Bow and Arrow



Lit-up Christmas tree



Doctor's Stethoscope



Swinging



Energy All Around Us

Elaboration: Energy Sorting Relay Cards, page 2

Looking in a Mirror



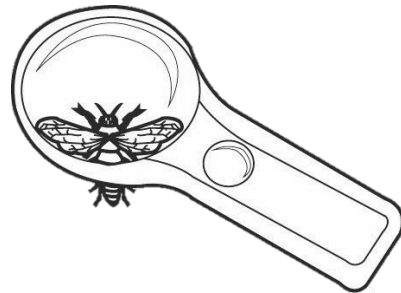
Playing the Guitar



Talking on the Phone



Using a Hand Lens



Hot Chocolate



Cooking Food



Buzzing Bee



Hammering a Nail



Energy All Around Us

Elaboration: Energy Sorting Relay Cards, page 3

Doorbell Chiming



Hot Nails



Observing Shadows



Riding a Bike



Kicking a Soccer Ball



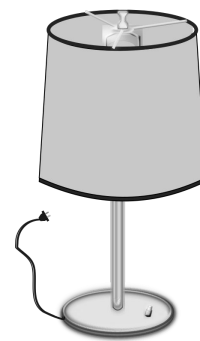
A Whistle Being Blown



Pizza Oven



Using a Lamp to Read



Energy All Around Us

Elaboration: Table Tent-Light Energy

Energy

Light



Light
Energy

Energy All Around Us

Elaboration: Table Tent-Sound Energy

Energy

Sound



Sound

Energy

Energy All Around Us

Elaboration: Table Tent-Thermal Energy

Energy
Thermal

Thermal
Energy

Energy All Around Us

Elaboration: Table Tent-Mechanical Energy

Energy

Mechanical



Mechanical

Energy

Energy All Around Us

Name: _____

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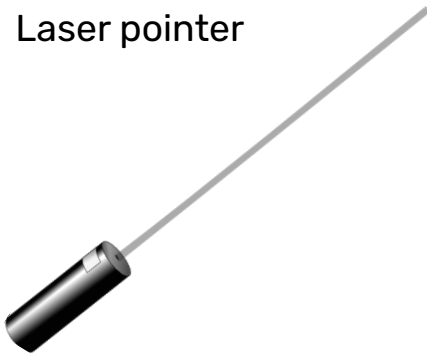
A spinning top



Popping popcorn in a microwave oven



Laser pointer



A balloon popping



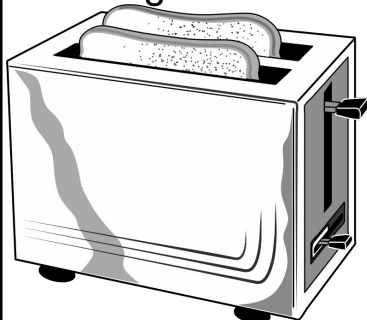
The crackling of a campfire



Jumping rope



Toasting bread



Using a microscope

