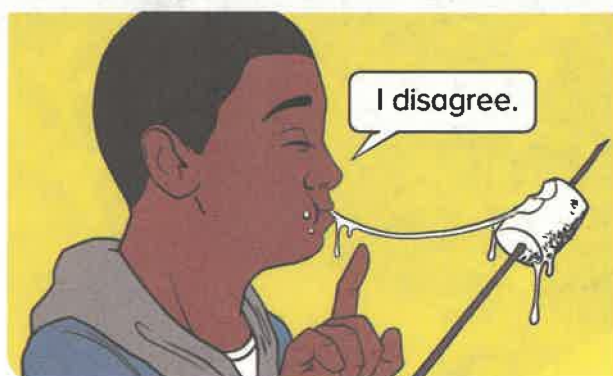
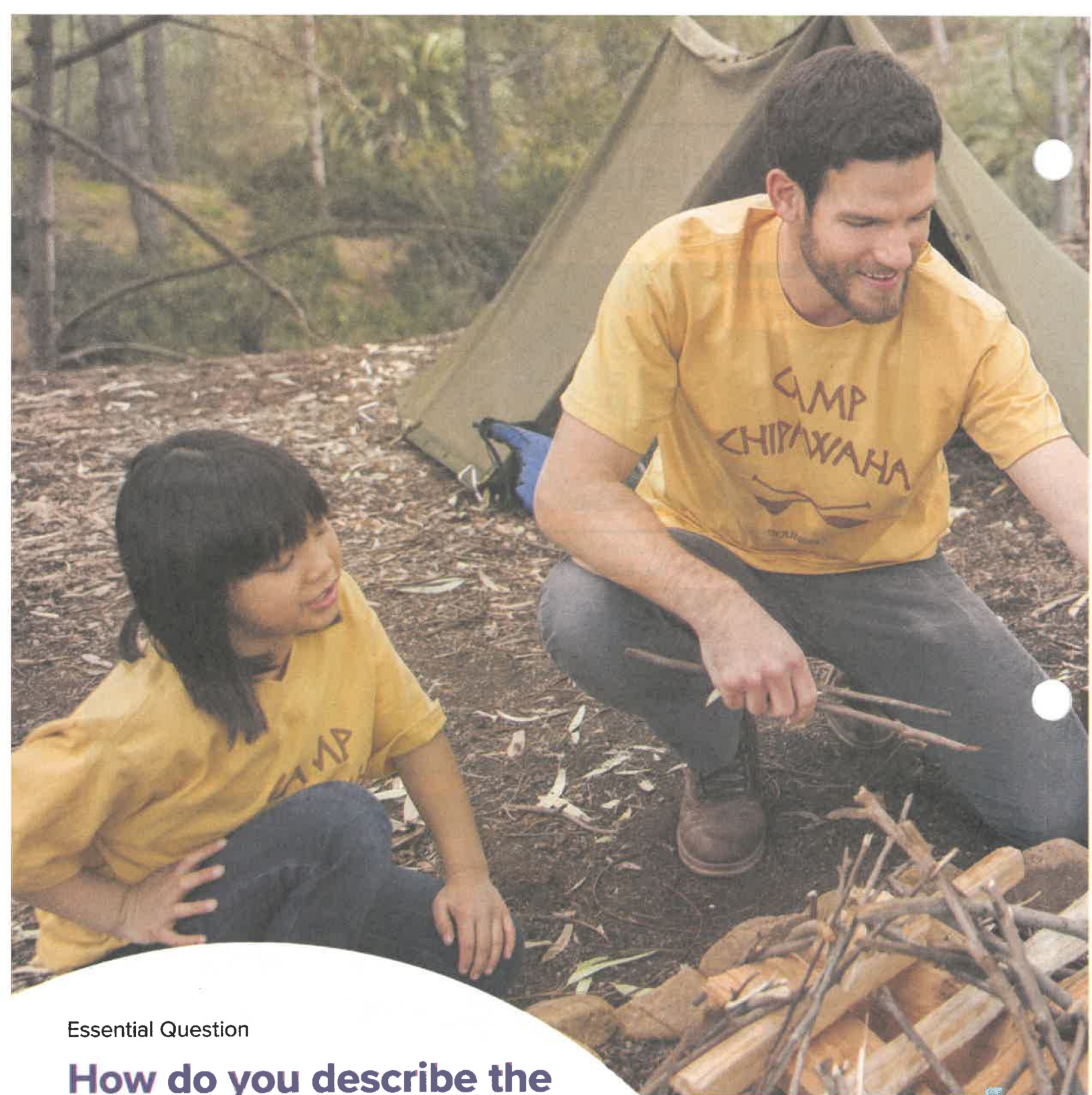




Flashlight Findings



Who do you think has the better idea, Lance or Wilbur? Explain.



Essential Question

How do you describe the basic forms of energy?



Watch *Energy All Around*.



What are some common forms of energy?



What do you wonder about different forms of energy?

Write it down!

Examine the Energy



Get your notebook and go explore!

chemical
energy

energy

mechanical
energy

Basic Forms of Energy



Claim, Evidence, Reasoning



How are the different forms of energy related to mechanical energy? Can you back it up? Keep reading and underline evidence.

Have you ever sat around a campfire with your friends and family, toasting marshmallows and listening to music? If so, you can thank many different forms of energy. **Energy** is the ability to do work or make a change.

Heat: One form of energy you experience sitting around a campfire is heat. Heat is the flow of thermal energy, or the energy of the moving particles of matter, from one substance to another.



Heat causes your marshmallow to become toasted and change color from white to a golden brown.

Heat moves from an object with a higher temperature to an object with a lower temperature. Convection occurs when gas or liquid is heated and moves away, taking energy with it. Heat is also transferred through direct contact, called conduction. Radiation is the third form of heat movement and occurs when waves of energy travel from a warm object to a cooler one without any direct contact.



Sound: A type of energy that is produced by moving particles of matter is sound. If you pluck a guitar string, it moves back and forth quickly. This back-and-forth motion is called a vibration. All sounds begin with a vibration. The vibrating parts of the guitar bump into air particles. Those particles bump into other air particles, which are interpreted as sound when they reach your ears.



A flashlight changes electrical energy into light energy. You can see objects because some of the light reflects off the object into your eyes.

Light: If you stand outside on a sunny day you can feel the warmth of sunlight on your face. This warmth shows that light is a form of energy. Light is a form of energy that helps you see things in the world around you.

Light travels in waves, but moves in a straight line away from a light source until the waves of energy hit another object. Some of the waves will be absorbed into the object, and other waves will be reflected. If the reflected light reaches your eyes, your brain will interpret the reflected waves as the color of that object.

Electrical Energy: Another type of energy, which is created by the movement of tiny charged particles, is electricity. In an atom, some parts have a positive charge (+) and others have a negative charge (-). Electricity refers to an electric charge and how it moves. Usually, the electric charge that moves is the negative one. Negative charges can move from one object to another, causing the material to take on a temporary charge. The energy carried by electric charge is called electrical energy.



What are some forms of electricity you are familiar with in your daily life? Discuss with a partner.

Chemical Energy



Investigation Connection



One of the forms of energy you explored was chemical energy. How is chemical energy related to chemical changes? Discuss with a partner.

The energy stored between the particles of matter is called **chemical energy**. Chemical energy is found in everything from the batteries that power many electronic devices to the watermelon you eat on a hot summer day.

In food that you eat, energy is stored in links between the atoms and molecules until it is digested. When you eat food, the cells in your body break down and release the energy. Your body uses this energy to perform other functions.



batteries

Similar links between atoms help batteries turn chemical energy into electrical energy. A chemical reaction inside a battery creates a flow of electrical charges between the opposite ends of a battery. This flow of energy can power electronic devices that it is connected to. As the chemical reaction continues, the materials in the battery are converted into other forms of energy. Eventually, you will need to replace the batteries or recharge them.

When a firework is lit, the chemicals inside react and release energy in the form of light and sound.



Mechanical Energy



Mechanical energy is the energy of an object due to its motion or position. As you wind up a mechanical duck toy, a spring inside winds tighter and tighter. The compressed spring is storing energy until you release the handle and allow it to unwind. As it unwinds, the stored energy becomes the energy of motion, which causes the toy to move.

Another way that energy can be stored is related to an object's position above the ground. When you swing on a swing you are experiencing different forms of mechanical energy. At the top of your swing, the highest point, you have stored energy due to your height above the ground. As gravity pulls you down, your stored energy decreases, and the energy of motion begins to increase.



How does mechanical energy make music?



Claim, Evidence, Reasoning



Now that you've gathered evidence, write your reasoning.
Discuss it!



**WORD
LAB**

Do you need
practice?

Interactive

Word

Wall

Remember
to update
your graphic
organizer!

Build Your Skill

Can You Identity Everyday Forms of Energy?

SC.5.N.1.2



Scientists investigate different forms of energy to identify what forms of energy can be found in different places. Scientists also investigate and explain how energy can be transformed.

Apply It

Draw a model of your classroom. Identify and label the different forms of energy, including light, heat, sound, electrical, chemical, and mechanical.



Write About It! **ELA.K12.EE.5.1**

Choose one object in your classroom, such as your computer. Investigate and create a poster to identify how electrical energy is transformed.