

Science

Science

Physical Science

What is Energy?



Genre	Comprehension Skill	Text Features	Science Content
Nonfiction	Infer	• Call Outs • Captions • Labels • Glossary	Energy

Scott Foresman Science 2.9



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by Christian Downey ▶

Vocabulary

conductor
energy
fuel
reflect
shadow
solar energy
source

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What is Energy?

by Christian Downey





Energy

You use energy all the time. You use energy when you talk. You use energy when you eat.

Anything that can do work or cause change has **energy**.



You use energy when you walk, run, or play sports. You use energy when you think. You even use energy when you sleep!





Solar Energy

Earth gets energy from the Sun. Energy from the Sun is called **solar energy**. Solar energy is heat and light. People can use the Sun's energy to make things work.

Without the Sun, Earth would be dark and cold.

solar panel



solar-powered calculator



The calculator above uses the Sun's energy to work. The solar panel traps the solar energy. The car below also uses the Sun's energy to work.

solar panel



solar-powered car



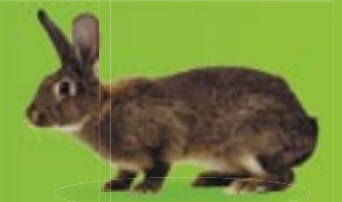
Living Things Use Energy

All living things need energy. Green plants use energy to live, grow, and make food. Green plants get energy from the Sun. They make food using sunlight, air, and water.



Animals use energy to live, grow, and move. Animals get energy from food. Some animals get energy from eating green plants. People use energy too.

All living things need energy to live.





People Get Energy from Food

Food gives us energy. When you get energy from food, you can work, play, and grow. Different kinds of food keep your body healthy.



There are five important food groups. Your body needs food from all these groups. If you eat too many sweets or foods from one group, you may not stay healthy.



**If you eat
healthful food,
you will have
lots of energy.**



The Five Food Groups

This picture shows foods from the five food groups. Which foods did you eat today?



1

Meat, fish, eggs, and dry beans help your body grow.

2

Fruits have vitamins and minerals that your body needs.

3

Bread, rice, cereals, and pasta give your body energy.

4

Vegetables have vitamins that your body needs.

5

Milk, yogurt, and cheese help your teeth and bones grow strong.





Sources of Heat

A **source** is a place from which something comes. Heat can come from the Sun. The Sun is one source of heat.

Heat can come from other sources too. Heat can come from a stove. Heat can come from a fire.

A stove is a source of heat.



wood



oil



coal

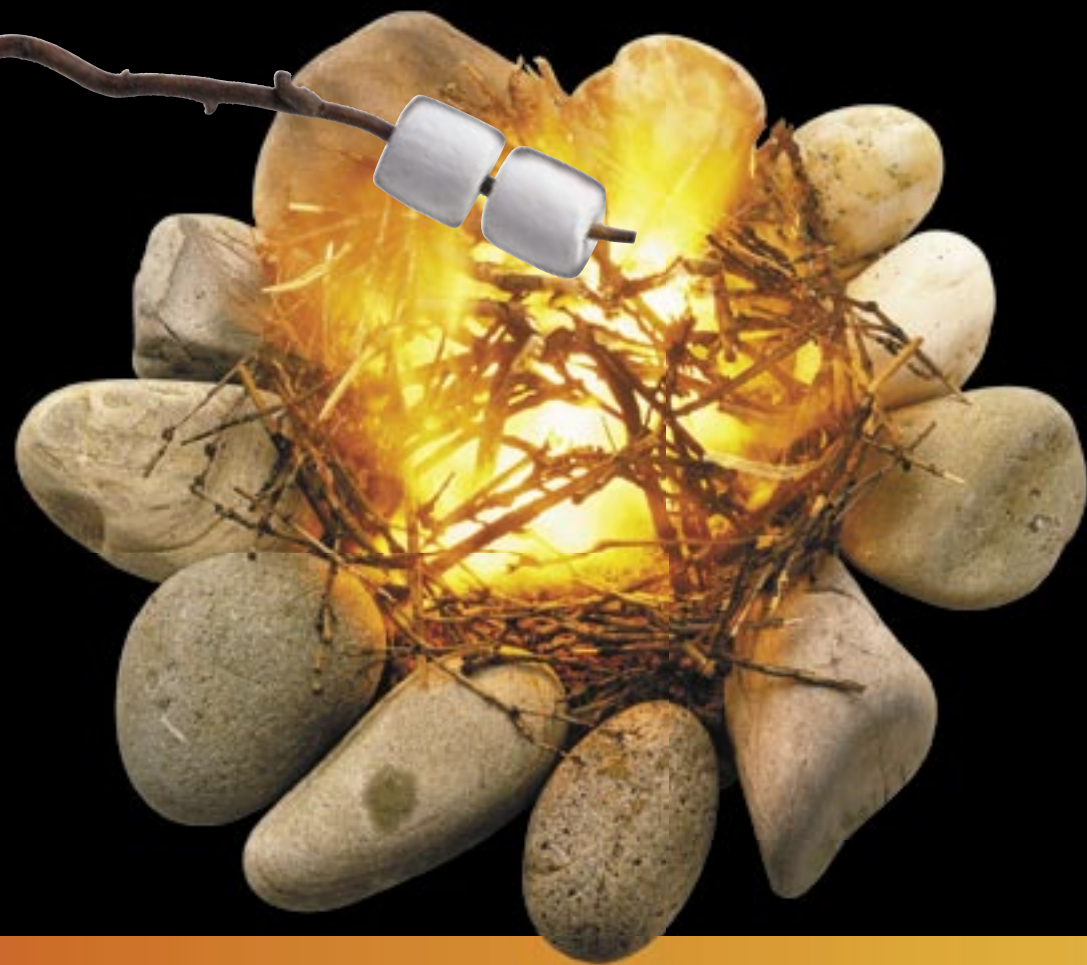


Some stoves use gas. Gas is a kind of fuel. A **fuel** is something that is burned to make heat. Wood, oil, and coal can also be used as fuel.



Heat Moves

Heat moves from hot places and objects to cooler places and objects. In this picture, heat is moving from the fire to the marshmallows.



Some materials are heat conductors. A **conductor** is a material that allows heat to pass easily through it. The cookie tray in this picture is made of metal. Metal is a conductor. The tray lets heat get to the cookies. The oven mitts are not conductors. Heat cannot move easily through them.



Oven mitts can protect our hands from heat because they are not good conductors.



Light

Light is a kind of energy. Light can come from a candle, a lamp, or the Sun. Most sources of heat also give off light.



Candles and lamps are sources of light and heat.



Light moves in straight lines. It can move through things that are clear. Light can move through glass or water.

Sometimes light hits an object it cannot go through. Light will bounce, or **reflect**, off the object.



A mirror is not clear. Light cannot go through it. Light reflects off a mirror.

flashlight _____

mirror _____





Light reflects off light colors.
The next time you are hot, wear
something white. You will
feel cooler.

Light does not reflect as much off
dark colors. If you wear something dark
on a hot, sunny day, you will get even hotter!



Light-colored clothes
reflect light from the Sun.



The light we see is called
white light. But it is made up of
many different colors. This prism
is bending the sunlight. The light
becomes separated into its colors.
How many colors can you see?

prism

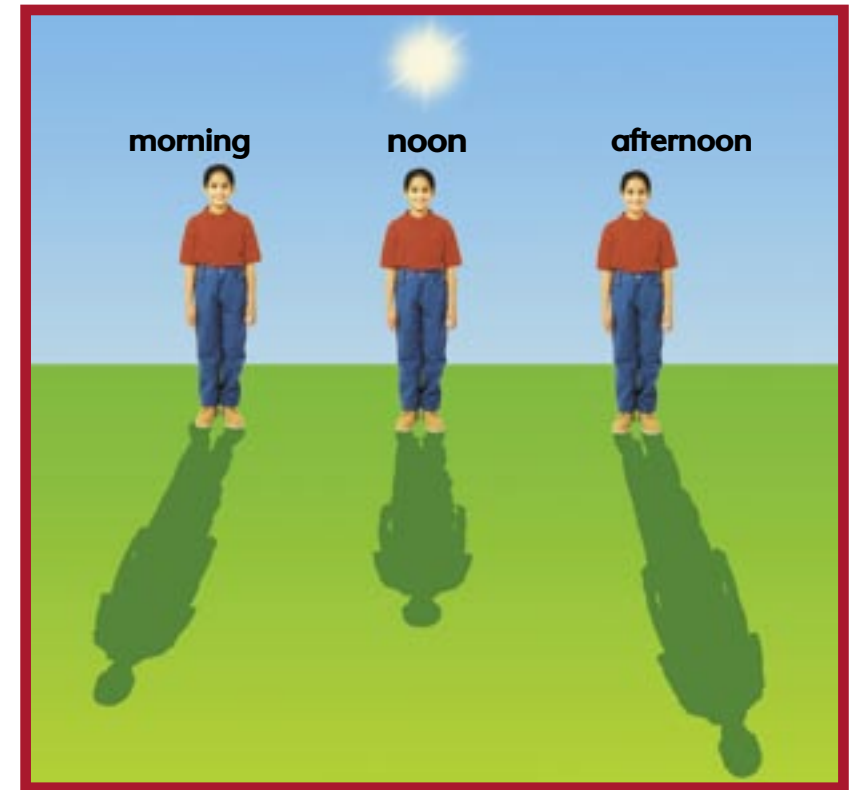


Raindrops can act like prisms to make rainbows. The
raindrops bend the light and separate it into its colors.



Shadows

A **shadow** is made when something blocks a source of light. You can make a shadow by blocking light with your body. You can play with shadows using a flashlight.



Shadows change during the day. In the early morning, light from the Sun makes long shadows. At noon the Sun shines directly above us. Shadows are very short. The sunlight cannot easily be blocked. In the late afternoon, long shadows can be made again. It becomes easier to block the sunlight.

This sundial works by using changing shadows.





Other Kinds of Energy

Some other kinds of energy are motion, wind, sound, and electricity.

A kite uses wind energy to move.



This drum can make sound. Sound is a kind of energy.



It is important to use electricity safely. Keep things that use electricity, like this CD player, away from water. Never touch a cord that has a wire showing!



When you throw a ball, you give the ball the energy of motion.



All living things need and use energy. Energy comes from many different sources. The most important source of energy is the Sun.

Did you use light or heat from the Sun today? Did you use electricity? Pay attention to the sources of energy you use. Energy is all around us!



Glossary

conductor	a material that lets heat move easily through it
energy	anything that can do work or cause change
fuel	something that is burned to make heat
reflect	to bounce back from a surface
shadow	a dark area that forms when a light source is blocked
solar energy	heat and light from the Sun
source	a place from which something comes

What did you learn?

1. How do plants and animals get energy?
2. What are some kinds of energy?
3. **Writing in Science** Shadows change during the day. In your own words, write to explain why this happens.
4.  **Infer** What can you infer about someone wearing dark blue clothing on a hot, sunny day? How will that person feel?

