

The background of the entire page is a close-up photograph of a person's hands playing an acoustic guitar. The guitar has a light-colored wooden body and a dark fretboard with decorative inlay. The strings are visible, and the player's fingers are positioned on the frets and strings.

What Are **Heat,** Light, and **Sound?**

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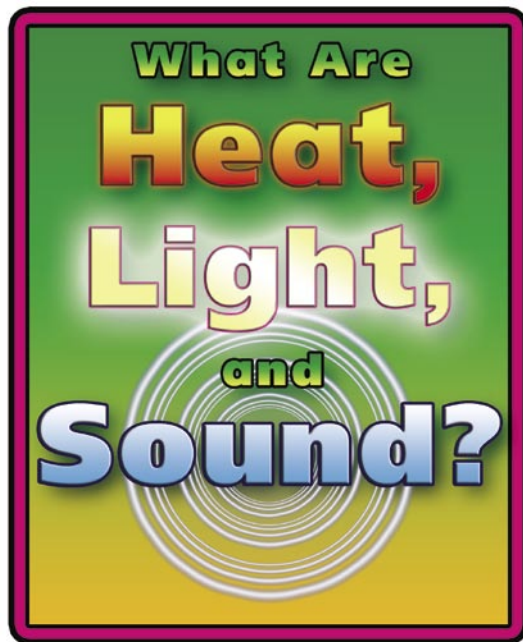
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Heat Energy

Heat is energy that makes things hot. The sun is what gives Earth heat energy.

The sun is a star. It warms the land, air, and water all around you.

Fast Fact

The middle of the sun is at least 15 million degrees Celsius (27 million degrees Fahrenheit).

The sun gives heat energy to warm the sand, the water, and the air.



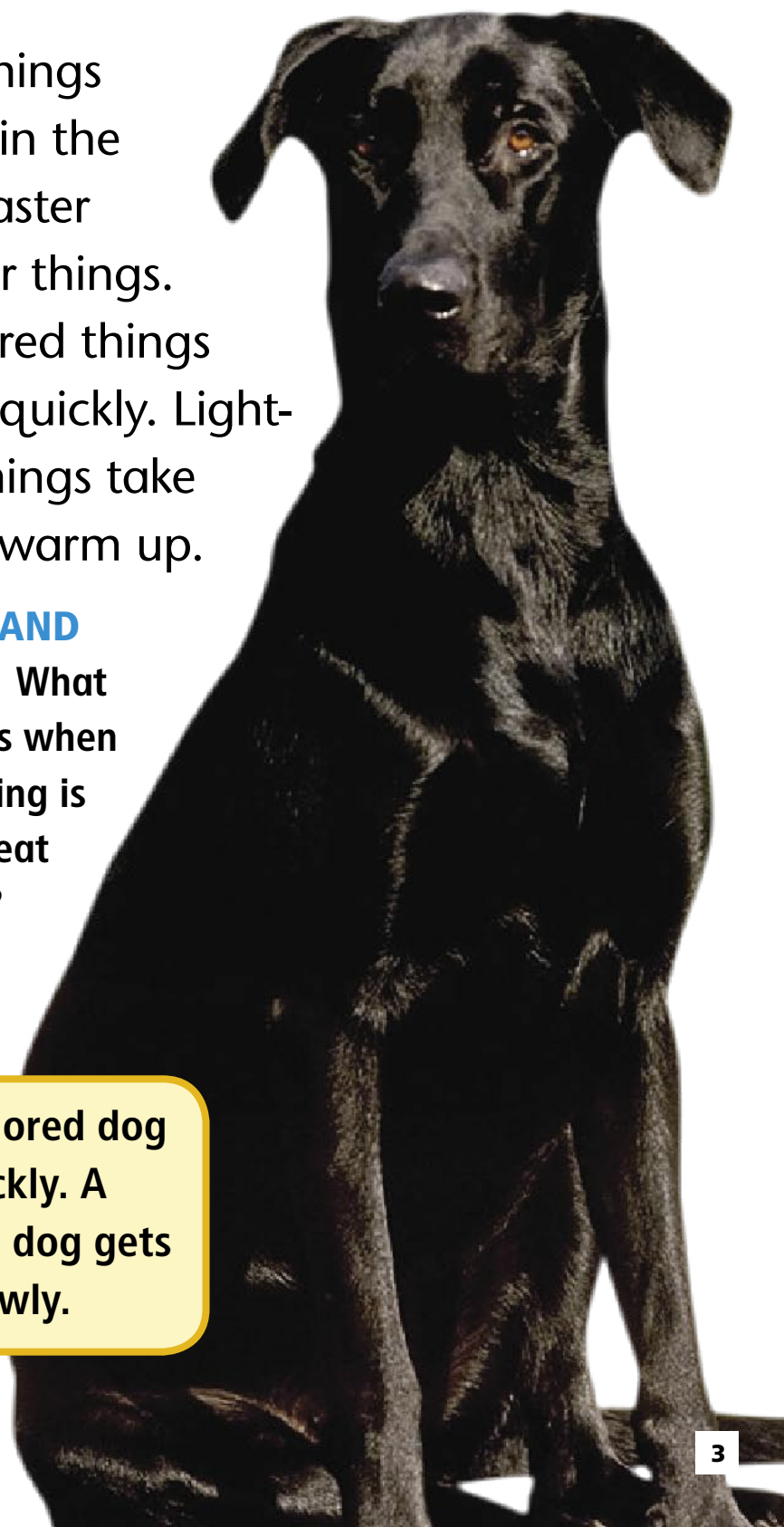
Some things warm up in the sunlight faster than other things. Dark-colored things warm up quickly. Light-colored things take longer to warm up.



CAUSE AND

EFFECT What happens when something is given heat energy?

This dark-colored dog gets hot quickly. A light-colored dog gets hot more slowly.



Feeling the Heat

You feel heat from the sun. You can feel heat from other things, too.

Fire makes things warm. You can feel heat when something is burned.



Fire gives off heat.
It warms this room.



You feel heat
when your hands
slip quickly
against a rope.

Have you ever rubbed your hands together when they were cold? You can feel them get warm. Moving things together gives off heat.



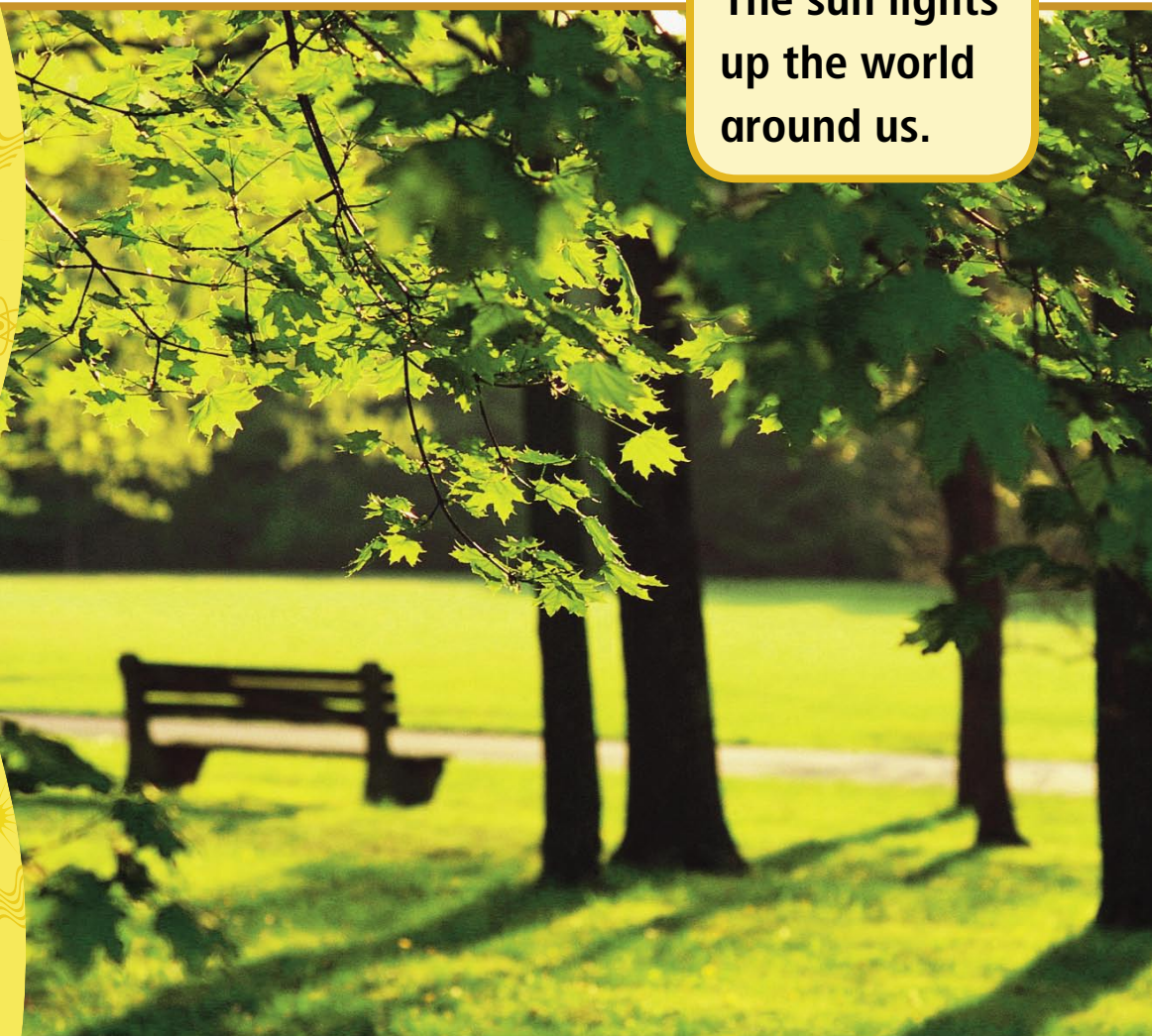
CAUSE AND EFFECT What things can you do to warm your hands?

Light Energy

Light is a kind of energy. The sun gives light energy for the world around us.

When you go outside, you can see trees and houses. Light helps you to see.

The sun lights
up the world
around us.



A candle is burned
to give light.



It can get dark at night.
It can be hard to see. Fires
and lamps give off light.
People use fires and lamps
to help them see.



MAIN IDEA AND DETAILS

Where can we get light?

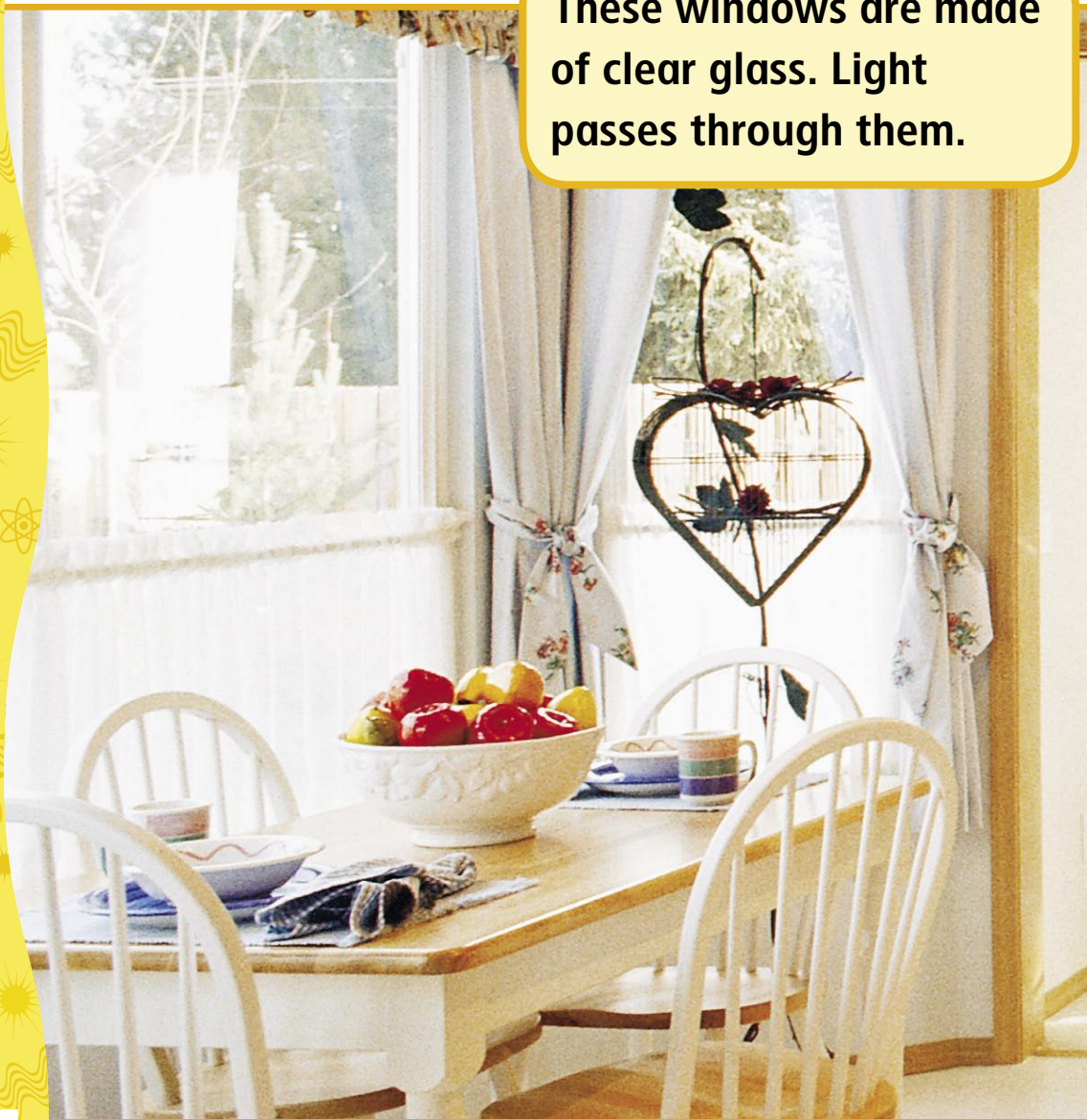
Fast Fact

A 100 watt
light bulb at
your house
makes as much
light as about
1,500 candles!

Light on the Move

Light moves. It passes through clear objects. It passes through clear glass. It passes through clear air.

These windows are made of clear glass. Light passes through them.



Objects that are not clear, block light. Trees, buildings, and even people can block light. They can make shadows. A **shadow** is a dark place made when an object blocks light. You can see lots of shadows on a sunny day.



CAUSE AND EFFECT What causes a tree to make a shadow?

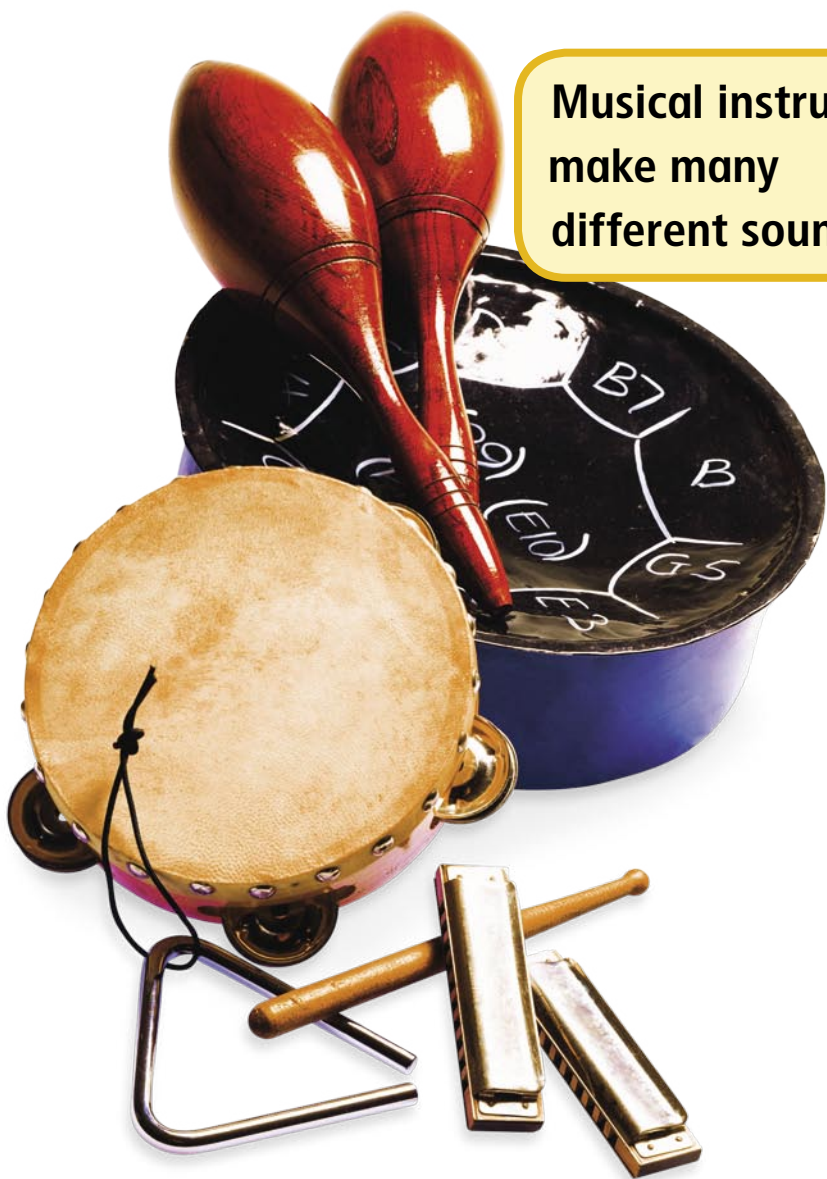
Can you see shadows?
What blocked the light
from passing through?

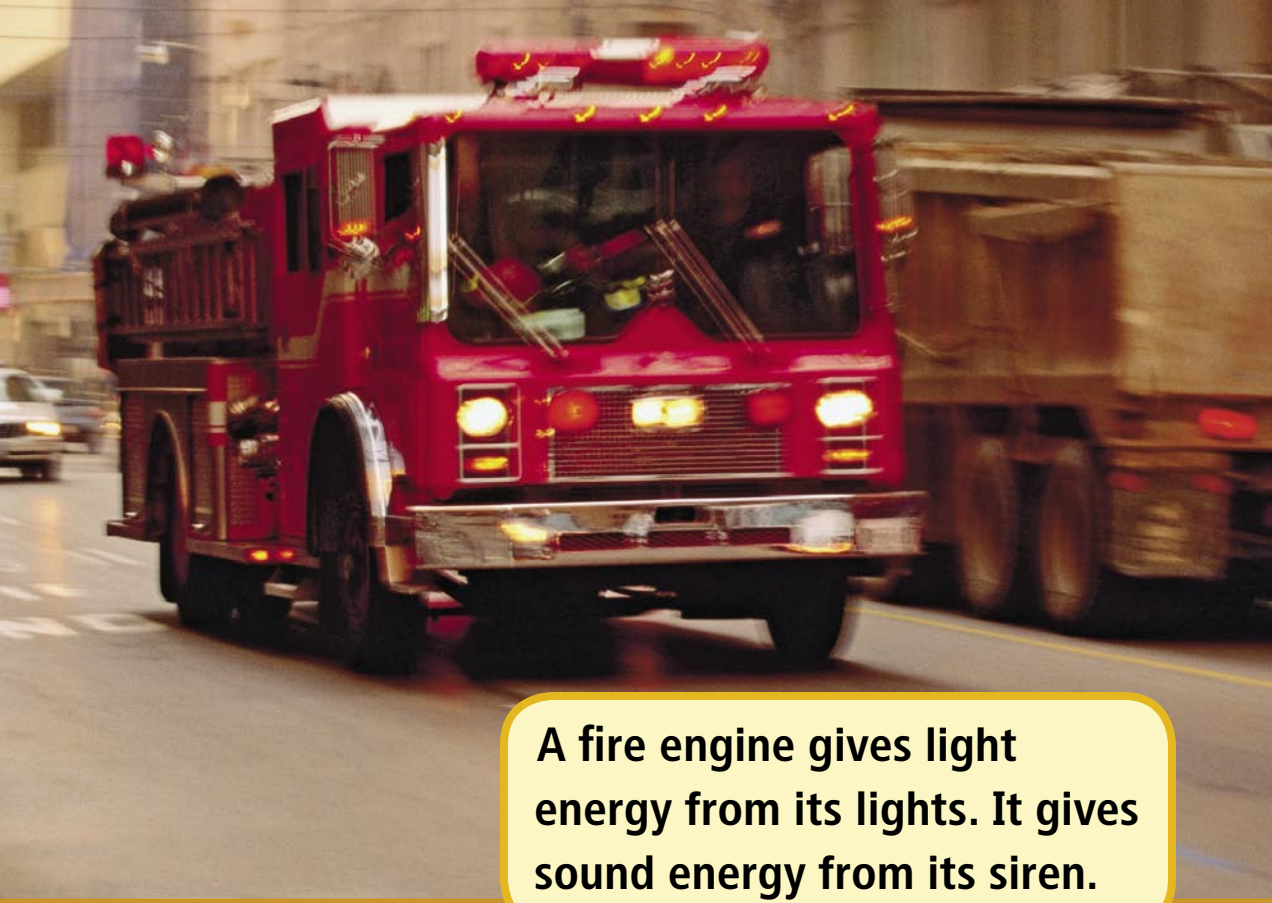


Sound Energy

Did you know that sound is a kind of energy? **Sound** is energy you can hear. Music, talking, and a dog barking are all sound. Sound is all around us.

Musical instruments make many different sounds.





A fire engine gives light energy from its lights. It gives sound energy from its siren.



COMPARE AND CONTRAST How is the light from the sun like sound from a drum?

Summary

The sun sends heat and light energy to Earth. We also get heat and light in other ways. Light can pass through some things, but not others. Sound is a kind of energy, too.

Glossary


heat A kind of energy that makes things hot (2, 3, 4, 5, 11)

light A kind of energy that helps us see (3, 6, 7, 8, 9, 11)

shadow A dark place made when an object blocks light (9)

sound A kind of energy that you can hear (10, 11)

Think and Write

1. Name three kinds of energy.
2. **CAUSE AND EFFECT** What does the sun do to Earth's land, air, and water?
3. **MAIN IDEA AND DETAILS** What can happen when light moves to an object?
-  4. Write a story about your trip to school today. Talk about the different kinds of energy.

Hands-On Activity

Work with a partner. Make a list of all the sounds on a city street.

School-Home Connection

With an adult, make a list of things in the kitchen that make light, heat, and sound.