

FOUNDATIONS OF PHYSICS

LIGHT AND SOUND



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CHAPTER 1

WHAT ARE LIGHT AND SOUND?

Close your eyes and listen.
What do you hear? Maybe you
hear a car zooming by or a bird
chirping outside your window.
Sounds are all around.



Sunlight keeps us warm. Plants need it to grow. The world is full of light and sound. Light and sound are forms of **energy**.



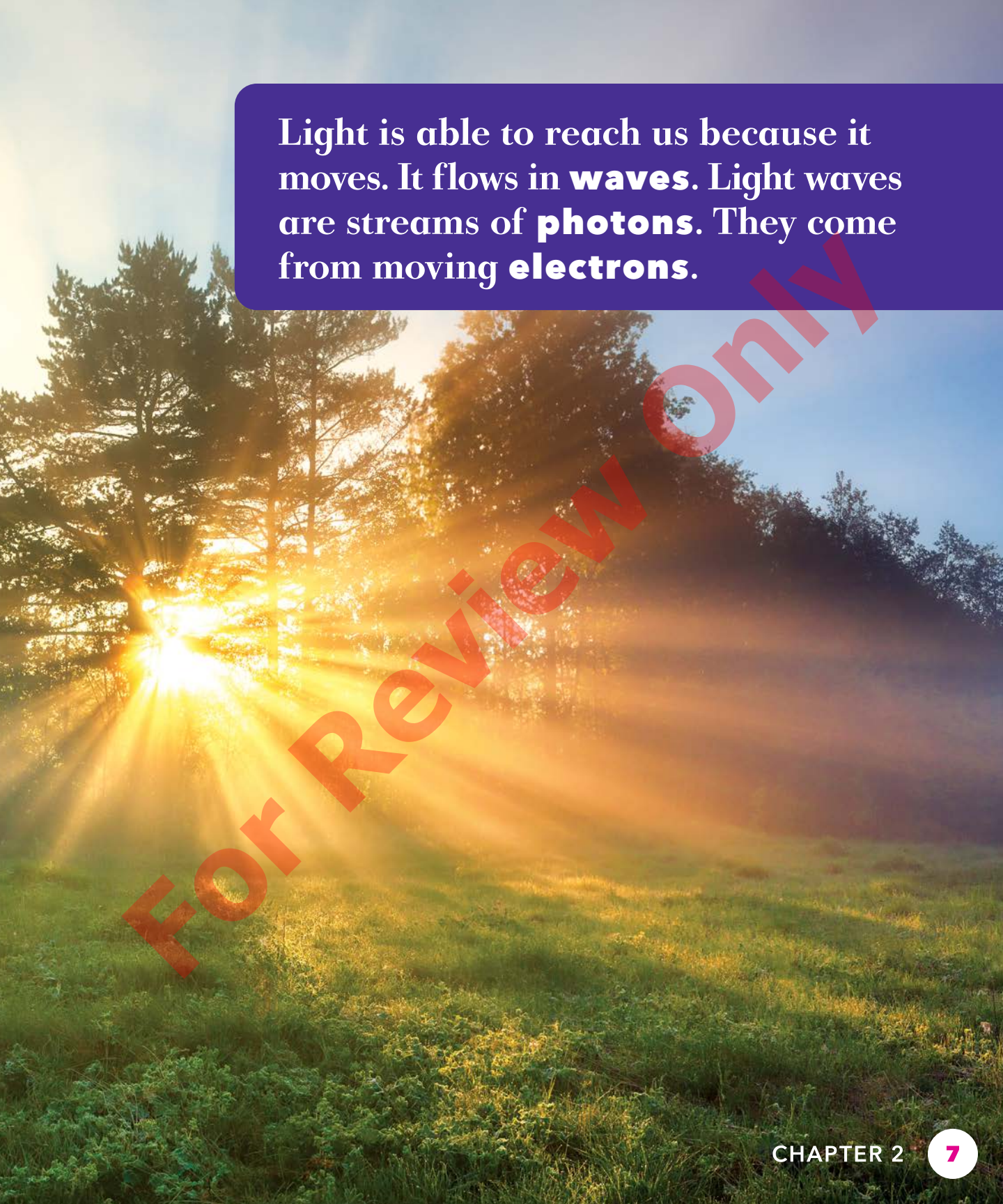
CHAPTER 2

HOW LIGHT WORKS

The sun gives off light.
Light bulbs do, too.
No matter the source,
light helps us see.



light bulb

A scenic photograph of a sunburst breaking through a line of trees, casting long, golden rays of light across a lush green field. The sun is positioned on the left side of the frame, partially obscured by the dark silhouettes of the trees. The rays of light create a dramatic, hazy atmosphere. The foreground is filled with vibrant green grass and small yellow wildflowers. The sky is a clear, pale blue. A large, semi-transparent red watermark with the text "For Review Only" is oriented diagonally across the center of the image.

Light is able to reach us because it moves. It flows in **waves**. Light waves are streams of **photons**. They come from moving **electrons**.

The light we see is called white light. But it is actually made up of red, orange, yellow, green, blue, indigo, and violet light. These colors are part of the **visible spectrum**. There are colors outside the visible spectrum, but we cannot see them.



TAKE A LOOK!

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What colors make up the visible spectrum? Take a look!



ACTIVITIES & TOOLS

TRY THIS!

SEE AND HEAR

In this activity, see how light and sound travel through different substances.

What You Need:

- at least two clean, identical glass jars
- water
- rocks or candy
- spoon
- flashlight



- 1 Fill one jar with water.
- 2 Fill the other jar with rocks or candy.
- 3 Tap each jar with a spoon. What do you notice about the sounds? Do they sound alike or different? Why do you think that is?
- 4 Now shine a flashlight under each jar. Does light pass through each? Does one jar let more light through? Why do you think that is?
- 5 Repeat Steps 1 through 4 with other solids and liquids, such as oil, dish soap, and clear or opaque marbles. Why do you think sound and light act the way they do in each case?