

# Light and Sound

Grades 1-3

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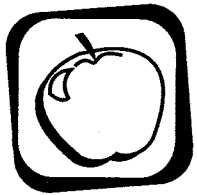
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# Introduction to Light

Teacher Notes

## **Can You See in the Dark? (page 9)**

The students will often insist they can still see when in total darkness. This is due to the continued firing of nerve cells on the retina. Some will even insist they see distinct shapes. The test to prove they are not actually seeing light is to hold an object such as a white ball in front of them, turn out the light, move the ball (e.g., put it on the floor) then ask them if they can see it. They will likely think it is still in front of them. Turn on the light and they will realize they could not see it.

## **Light Travels Fast (page 12)**

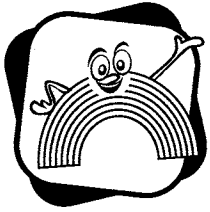
Understanding that all light must have a source, this activity enforces the concept that light must move from point A (the source) to point B (i.e., the wall). A difficult concept for young learners is that speeds can be so fast as to seem instantaneous. The purpose here is to teach them that while light does move from A to B, it does so very fast. The speed of light is 186,282 miles per second (300,790 kilometers per second).

## **Light Travels Straight (page 14)**

This principle has been simplified and is technically not 100% accurate. Light travels straight and this is not affected by forces such as gravity, sound waves, and the motion of air. However, light will react to heat energy. Students can be shown this as an advanced step by placing a candle directly below the laser beam (placed close to the source). This will cause the dot of light on the wall to move because the light is bending as it absorbs the additional energy.

**Common laser pointers are dangerous to the retina. Students should be cautioned not to point it at faces or to look into the laser pointer.**





## Can You See in the Dark?

Seeing and light go together. Look around you. Where does the light come from? All light has a source. A light bulb is a source. The sun is a source. If you remove the source of light you have darkness.

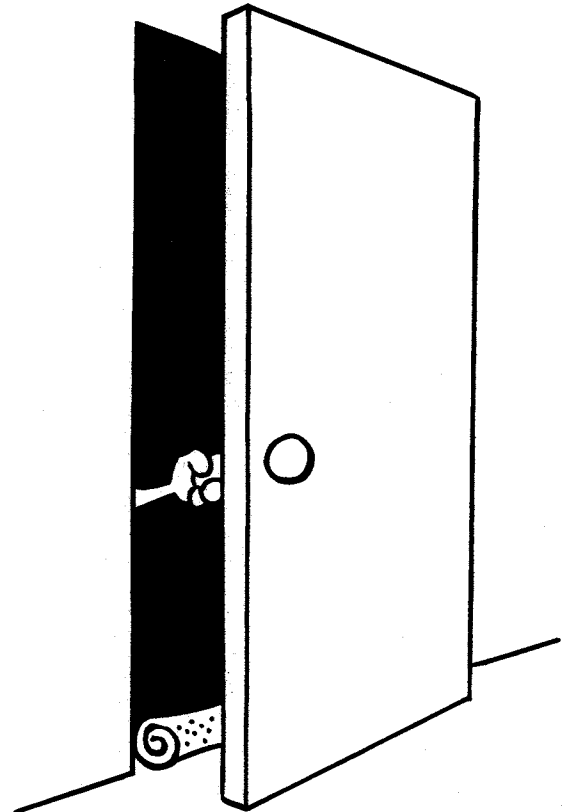


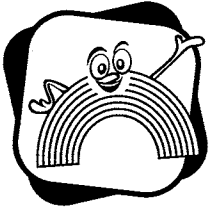
- a room with no windows and a door
- a towel to block light from under the door
- a tennis ball



With some classmates, close yourselves into a room with no windows. A janitor's closet works well. Identify the source of the light in the room. Then, switch the light off and look around you.

What do you see?





# Can You See in the Dark?

Name: \_\_\_\_\_

## Worksheet

The brain will "try" to see things in the dark. To test this put the ball somewhere in the dark room with the light on.



Will you be able to see the ball with the lights off? \_\_\_\_\_



Switch the light off and have a student move the ball.

What do you see? \_\_\_\_\_  
\_\_\_\_\_

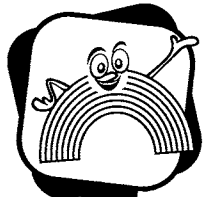
Where is the ball now? \_\_\_\_\_

Switch the light on. Where was the ball really?  
\_\_\_\_\_



Can you see in the dark? \_\_\_\_\_

If you have no light source, there is \_\_\_\_\_.

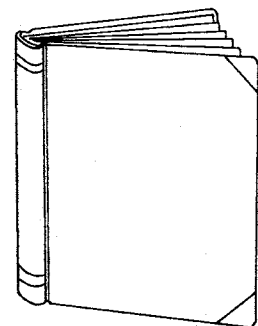
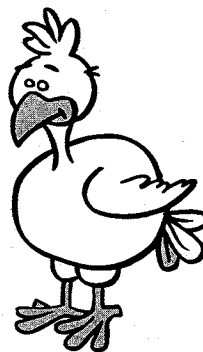
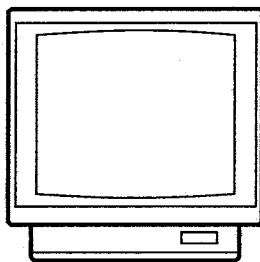
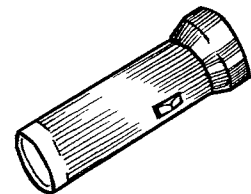
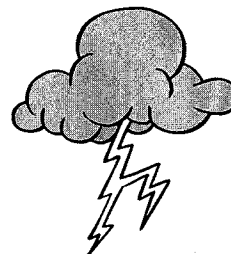
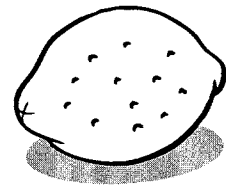
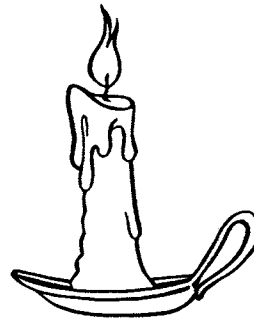
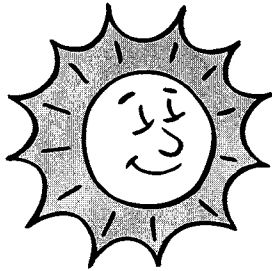


Name: \_\_\_\_\_

# The Source of Light

All light has a source. The sun is a source of light. A light bulb is a source of light.

Look at the pictures below and circle the things that can be sources of light.



Introduction to Light