



SCIENCE Connection

TAKE A LOOK! Chapter 3
explores the mysteries of
light and color.

Scientific Investigation, Reasoning, and Logic: Science SOL 5.3

The student will investigate and understand how sound is created and transmitted, and how it is used. Key concepts include

- transverse waves;
- the visible spectrum;
- opaque, transparent, and translucent;
- reflection of light from reflective surfaces; and
- refraction of light through water and prisms.

For more information or background knowledge to help you understand this standard, visit http://www.doe.virginia.gov/testing/sol/standards_docs/science/index.shtml

In this unit we will introduce the concept of visible light and how we use light in our daily lives.

How can I supplement what is happening in class?

Here are some things you can do at home.

- **Play Flashlight Tag!** Around dusk, take your family outside to a safe area or you can play in a darker room inside. When you start the game, assign one person to be “It” and give him or her a flashlight. All other players should run and hide. After counting to 30, “It” should try and tag a player with the flashlight beam. When a player is tagged, he sits out waiting for the next round. Discuss ways players can avoid being tagged by the beam. Your child may say he could zigzag back and forth or stand behind an object. Talk about why those strategies work to avoid the light beam. Discuss how light travels in a straight line and how light cannot pass through a solid object.
- **Continue exploring with the flashlight** by using it to shine through a variety of objects. Challenge your child to locate multiple transparent, translucent, and opaque materials in each room of your house.

http://www.bbc.co.uk/schools/scienceclips/ages/10_11/see_things.shtml

You may want to play some of the games on this site with your child. The first game is about reflection of light. When finished, you can click “What’s Next” at the bottom to find a game about shadows. There are many fun activities on this site pertaining to light, so have fun exploring!

What is expected of your child?

In order to meet this standard, it is expected that students will:

- diagram and label a representation of a light wave, including wavelength, crest, and trough.
- explain the relationships between wavelength and the color of light. Name the colors of the visible spectrum.
- explain the terms transparent, translucent, and opaque, and give an example of each.
- compare and contrast reflection and refraction, using water, prisms, and mirrors.
- analyze the effects of a prism on white light and describe why this occurs.
- explain the relationship between the refraction of light and the formation of a rainbow.