

**Chapter 14**

Use with Section 3

**ENRICHMENT****● Refraction and Lenses****Changing Your View**

Refraction is a property of light. It takes place when light waves change speed. This can happen either when light passes from one medium to another, or when the density of the material that the light is passing through changes. You see light being refracted when you look at an object on the bottom of a swimming pool. The object may look like it has changed size or position due to refraction. Another example of refraction is called a mirage. It looks like a faraway puddle on the surface of a road on a hot summer day. The mirage is created by the road heating the air molecules above it. Because it is heated, this thin layer of air becomes less dense than the air above it. As the light passes through these layers of air that have different densities, it is bent, causing the mirage. What you see is a view of the sky, which looks like a reflection in a puddle.

**Materials**

- a large glass and a small glass that are clear, colorless, and free of etching (The smaller glass must fit inside the larger glass, with about a half-inch clearance between the two glasses all the way around.)
- water

**Procedure**

1. Put the smaller glass inside of the larger glass.
2. Fill both glasses with water all the way to the top. Describe what you see when you look through the large glass. Try moving the small glass slightly, and describe any changes in what you see.

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3. Use what you know about light to explain your observations.

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