**Refraction**

Imagine that you and a friend are at a lake. Your friend wades into the water. You look at her and are startled to see that her feet look like they are separated from her legs! You know her feet did not come off, so how can you explain what you see? The answer has to do with refraction.

**Refraction** is the bending of a wave as it passes at an angle from one medium to another. Refraction of light waves occurs because the speed of light varies depending on the material through which the waves are traveling. In a vacuum, light travels at 300,000,000 m/s, but it travels more slowly through matter. When a wave enters a new medium at an angle, the part of the wave that enters first begins traveling at a different speed from the rest of the wave. **Figure 17** shows how a light beam is bent by refraction.