RESOURCE

Bouncing Light

▲ Image in a fun-house mirror

You see objects because light coming from them enters your eyes. The Sun, lamps, and candles give off light, but most objects don't. You can see such objects because of reflected light.

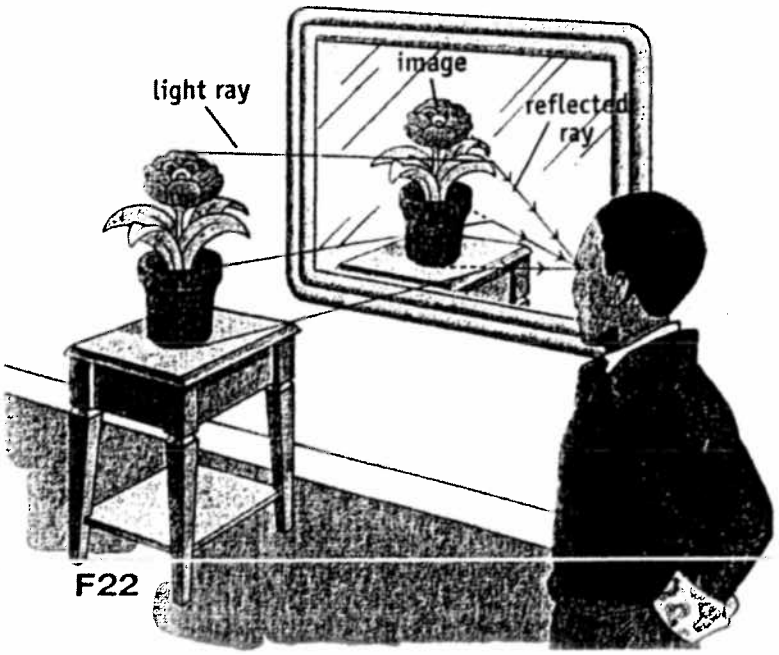
Reflection (ri flek'shən) is the bouncing back of light (or sound, or water) from a surface. Think of a lamp as it gives off light. Some of the light hits a chair. Part of the light that hits the chair is absorbed by the chair, but most of the light is reflected off the chair. Light that reflects off the chair to your eyes lets you see the chair.

Plane Mirrors

Any object with a very smooth surface, including still water and highly polished metals, can act as a mirror. The type of mirror you are most familiar with is called a plane mirror. A **plane mirror** is a mirror with a flat surface.

Light reflects from a plane mirror in the same pattern and at the same angle

▼ Reflection in a plane mirror



▼ Image in a plane mirror

at which it strikes the mirror's surface. However, the light changes direction as it is reflected. If you stand in front of a mirror, light bouncing off your body strikes the mirror's surface. Some of this light is reflected off the mirror and back to your eyes. Because the light reflects off the mirror with the same pattern as the light that struck the mirror, you see an image.

The image you see in a plane mirror is right-side-up and the same size as the object being reflected. The image is not distorted, or out of shape. But it is reversed from left to right, so you don't see yourself exactly as others do.

Use the drawing on page F22 to follow the path that light takes to form an image in a plane mirror. Some light rays from the object travel toward the mirror. As these light rays strike the mirror, they are reflected. These rays enter your eye and form an image. Your brain forms a mental picture of where the light seems to come from. Because light travels in straight lines, the image seems to be behind the mirror.

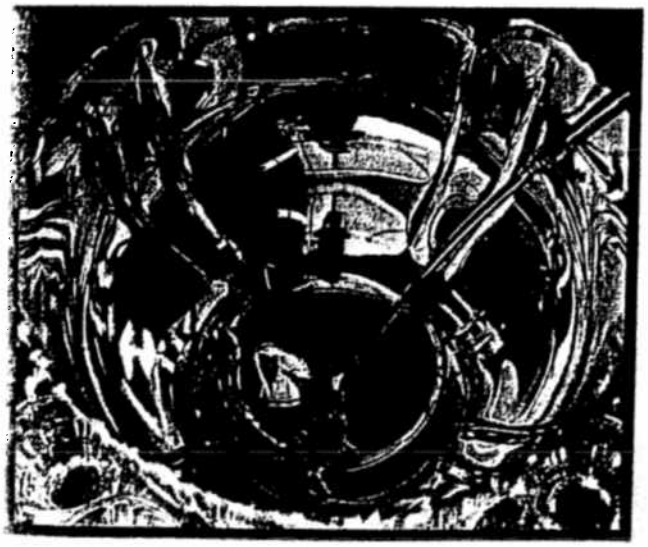
Concave Mirrors

The images you see in curved mirrors often are distorted and are usually not the same size as the object. There are two kinds of curved mirrors. A **concave mirror** curves inward at the middle. A **convex mirror** curves outward at the middle.

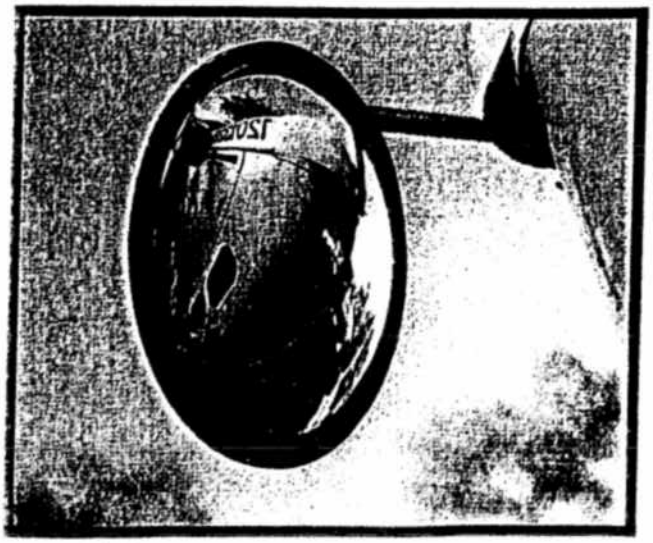
Shaving and makeup mirrors are often concave. When an object is close to a concave mirror, the image formed in the mirror is larger than the object. Concave mirrors are also used as reflectors to concentrate light. The reflected light rays come together and are focused at one point. A concave mirror can be used to focus solar rays and cook food in a solar oven.

Convex Mirrors

A convex mirror produces an image that is smaller than the object. It also allows you to see much more of an area than other kinds of mirrors do. Because convex mirrors reflect light from such a wide area, they are useful as side-view mirrors on cars and trucks. ■



▲ Concave mirror and the image it produces



▲ Convex mirror and the image it produces