84 Air Lens

Purpose

To apply knowledge of lenses to a different type of lens system

Required Equipment/Supplies

2 depression microscope slides
light source
screen

Discussion

Ordinary lenses are made of glass. A glass lens that is thicker at the center than at the edge is convex in shape, converges light, and is called a converging lens. A glass lens that is thinner at the middle than at the edge is concave in shape, diverges light, and is called a diverging lens.

Suppose you had an air space that was thicker at the center than at the edges and was surrounded by glass. This would comprise a sort of "convex air lens." What would it do to light? This activity will let you find out.

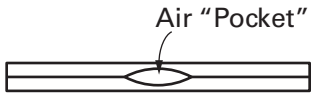

Fig. A

Construct convex air lens.

Procedure

Step 1: A convex air lens encased in glass can be produced by placing two depression microscope slides together, as shown in Figure A.

1. Predict whether this arrangement makes a diverging or converging lens. Explain your prediction.

Activity

Step 2: Use your lens with a light source and screen to check your prediction.

2. What do you discover?

Analysis

3. Why is the statement "The shape of a lens determines whether it is a converging or diverging lens" not always true?

4. Draw ray diagrams for both a *convex* and a *concave* air lens encased in glass to show what these lenses do to light rays passing through them.