

Chapter 30: Lenses**Pinhole “Lens”**

83 Lensless Lens

Purpose

To investigate the operation of a pinhole “lens”

Required Equipment/Supplies

3 in. × 5 in. card
straight pin
meterstick

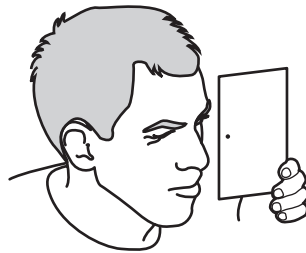
Discussion

The image formed through a pinhole is in focus no matter where the object is located. In this activity, you will use a pinhole to enable you to see nearby objects more clearly than you can without it.

Procedure

Step 1: Bring this printed page closer and closer to your eye until you cannot focus on it any longer. Even though your pupil is relatively small, your eye does not function as a pinhole camera because it does not focus well on nearby objects.

Look at print close up.



Step 2: With a straight pin, poke a pinhole about 1 cm from the edge of a 3" × 5" card. Hold the card in front of your eye and read these instructions through the pinhole. Bright light is needed. Bring the page closer and closer to your eye until it is a few centimeters away. You should be able to read clearly. Quickly take the pinhole away and see if you can still read the words.

1. Did the print appear magnified when observed through the pinhole?

Analysis

2. Did the pinhole actually magnify the print?

3. Why was the page of instructions dimmer when seen through the pinhole than when seen using your eye alone?

4. A nearsighted person cannot see distant objects clearly without corrective lenses. Yet, such a person can see distant objects clearly through a pinhole. Explain how this is possible. (And if you are nearsighted yourself, try it!)
