

Chapter 29: Reflection and Refraction**Formation of Virtual Images****77 Images****Purpose**

To formulate ideas about how reflected light travels to your eyes

Required Equipment/Supplies

2 small plane mirrors
 supports for the mirrors
 2 single-hole rubber stoppers
 2 pencils
 2 sheets of paper
 transparent tape

Discussion

Reflections are interesting. Reflections of reflections are fascinating. Reflections of reflections of reflections are . . . you will see for yourself in this activity.

Procedure 

Step 1: Place the pencils in the rubber stoppers. Set one plane mirror upright in the middle of a sheet of paper, as shown in Figure A. Stand one pencil vertically in front of the mirror. Hold your eye steady at the height of the mirror. Locate the image of the pencil formed by the mirror. Place the second pencil where the image of the first appears to be. If you have located the image correctly, the image of the first pencil and the second pencil itself will remain “together” as you move your head from side to side.

- How does the distance from the first pencil to the mirror compare with the distance of the mirror to the image?

Step 2: On the sheet of paper, draw the path you think the light takes from the first pencil to your eye as you observe the image. Draw a dotted line to where the image appears to be located as seen by the observing eye.

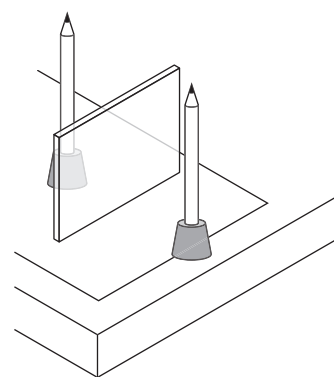


Fig. A

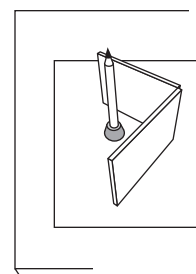


Fig. B

Step 3: Hinge two mirrors together with transparent tape. Set the mirrors upright and at right angles to each other in the middle of a second sheet of paper. Place a pencil in its stopper between the mirrors, as in Figure B.

2. How many images do you see?

Draw ray diagram.

Step 4: On the paper, show where the images are located. Draw the paths you think the light takes as it goes from the pencil to your eye.

Decrease angle between mirrors.

Step 5: Decrease the angle between the two mirrors.

3. What happens to the number of images you get when you decrease the angle between the two mirrors?
