Purpose
To demonstrate that a plane mirror has a virtual image.

Materials
- Pencil
- Ruler
- Small flat mirror
- Paper clip
- Index card
- Sheet of copy paper
- Walnut-size piece of modelling clay

Procedure
1. Use the pencil and the ruler to draw a 6-inch (15-cm) line in the center of the paper. Mark a dot in the center of the line.
2. Use a small piece of clay to stand the paper clip upright at one end of the line.
3. Use the remaining clay to stand the mirror upright on the dot on the line so that the mirror faces the paper clip.
4. Look in the mirror and determine how far behind the mirror the image of the paper clip appears to be.
5. Look behind the mirror at the end of the line where the image appears to be. Hold the index card at this spot and look at the card for signs of the image of the paper clip.

Results
The image of the paper clip appears to be the same distance behind the mirror as the paper clip is in front of the mirror, which is 3 inches (7.5 cm). But the image, which appears behind the mirror, cannot be projected onto a card held at this spot.

Why? A plane mirror is a mirror with a flat surface. The image of an object in a plane mirror appears to be as far behind the mirror as the object is in front of the mirror. Since the image cannot be projected onto a screen in the place where it appears to be, the image is called a virtual image.