

REFLECTION, DIFFRACTION, REFRACTION

SECTION 17: COMBINING DIFFERENT TYPES OF LENSES



Westminster College

PROCEDURE:

1. Hold both the convex and concave lenses about 30 cm in front of your eyes. (One in each hand.) Look through both lenses at an object about 1 M distant. (It may be helpful to close one eye.)
2. Check the columns that match your observations.

	convex lens	concave lens	both lenses convex in front	both lenses concave in front
sharply focused				
not sharply focused				
objects smaller than actual size				
objects magnified				
distortion of image at edges of lens				

3. Now move the convex lens in front of the concave lens. Describe what happens to the image as you move the lenses back and forth.
4. Reverse the position of the lenses – put the concave lens in front of the convex lens. Describe the results.
5. Use the convex lens and a magnifier together. (The magnifier is also a convex lens, but not as powerful as the glass lens.) What instrument might use a pair of convex lenses to magnify distant objects? **Hint:** The instrument is used by astronomers.

ADDITIONAL ACTIVITIES:

Working underneath a ceiling light, focus the convex lens over a sheet of white paper. When the light focused, (about 5 cm from the paper's surface) hold the concave lens directly over the convex lens. Then try to re-focus the light.

Mix and match the positions of the lenses and the magnifier, recording your results. If the paper is the retina of your eye and the convex lens is the eye lens, how would the concave lens and/or the magnifier be similar to eyeglasses?