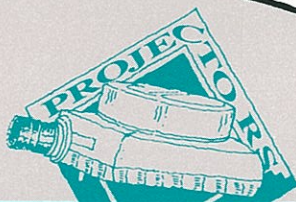


MAGNIFIERS

More than



Time Frame

Teacher Preparation	60 minutes
Activity 1: Magnifiers	30–45 minutes
Activity 2: Cameras	30–45 minutes
Activity 3: Telescopes	30–45 minutes
Activity 4: Projectors	30–45 minutes

What You Need (for all activities)

For the class:

- 1 one-gallon clear glass jug or jar
- a sheet of newspaper
- 1 inexpensive portable lamp with no shade
- 1 25' extension cord
- 1 40–75 watt red bulb
- 1 roll of masking tape
- 2 8½" x 11" sheets of lightweight tracing paper
- chalk and chalkboard
- (Optional) a camera, a commercial lens-type telescope, and a slide projector

For each team of two or three students:

- 1 lens, 40–100 mm focal length
- 1 lens, 80–300 mm focal length (The second lens of the pair must have a focal length at least twice as long as the first. See "Purchase Lenses" in "Getting Ready" on page 4.)
- 3 8-oz. styrofoam cups
- 1 color slide
- 1 flashlight (See "Acquire Slides and Flashlights" in "Getting Ready" on page 7.)
- 1 sheet of white paper
- 1 pen or crayon for writing on styrofoam cups

For each student:

- 1 "Magnifiers" data sheet
- 1 "Cameras" data sheet
- 1 "Telescopes" data sheet
- 1 "Projectors" data sheet

(Masters included, pages 13, 20, 28, 36.)

