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 8 1/2" 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.)