

Objectives: To show the apparent motion of the sun, sunspots, and solar rotation.

Materials: Shard of First Sided Mirror very roughly 5-8 mm (1/4 inch) square.
(Optical quality first sided mirrors are used on some astronomy devices, the delicate silver coating is deposited on the unprotected front surface.)
Tripod, North Facing Window & Blank Interior Wall

Procedure: Attach the first sided mirror to the tripod with masking tape.
(Masking tape may also be used to mask the mirror to the proper size.)

Align the mirror segment to project an image of the sun into the darkened room as shown below.

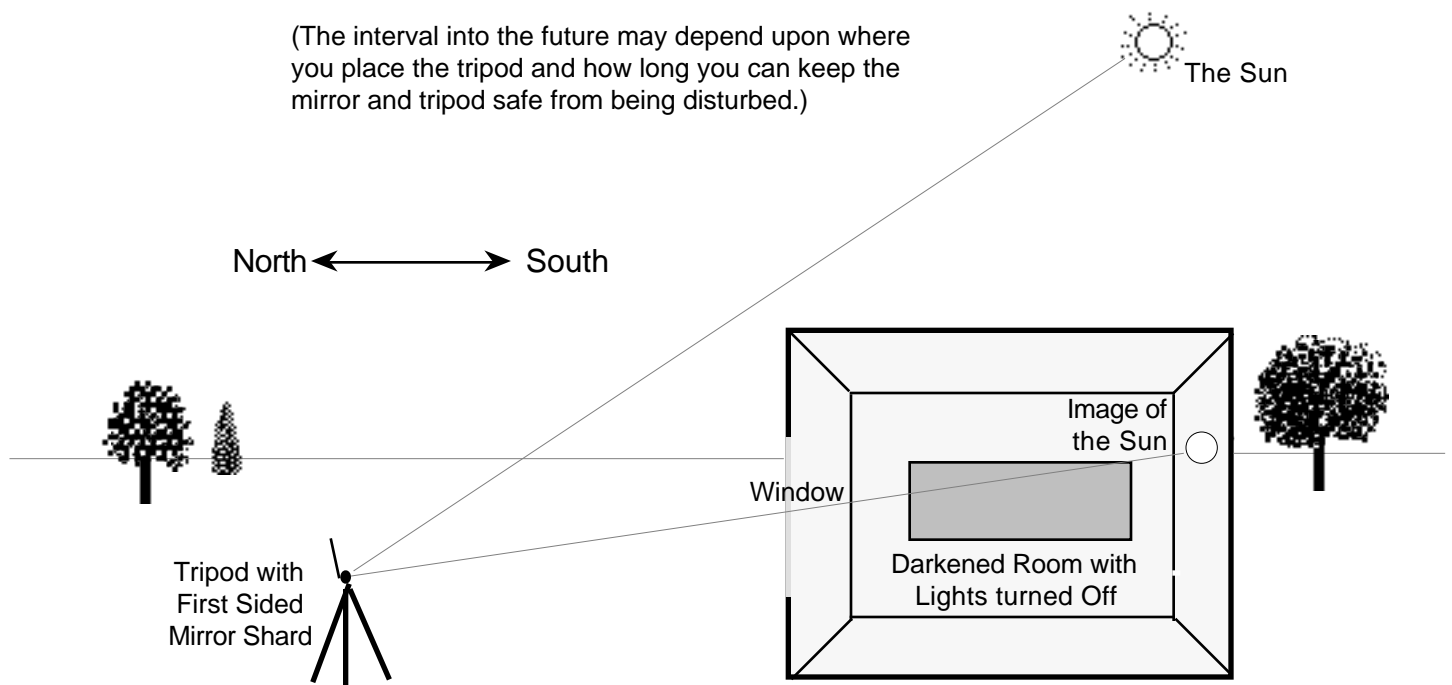
Observe the image as it slowly moves to the left (eastward) across the wall.

Look for sunspots that show disturbances on the sun, and can also be used to show the rotation of the sun by recording the positions of sunspots over a period of a week or two. (The period of solar rotation is roughly a month)

Extension: Challenge students to predict where the sun image will be at a particular time.

MATERIALS: One sheet of acetate or trading paper (with or without circle pre-drawn) per group.

(The interval into the future may depend upon where you place the tripod and how long you can keep the mirror and tripod safe from being disturbed.)



Tips: (1) Aiming the mirror is tricky. It isn't as difficult if you ask a student to hold a large white sheet of cardboard near the tripod. Get the image on the cardboard and, as you aim the image closer to the window, have the student move back toward the window.

(2) A smaller reflecting surface (mirror shard) will give a sharper image, but it will be dimmer.