

Name: _____

Date: _____

Solar Eclipse Viewer

If you're lucky enough to live in—or near!—the path of a solar eclipse, you can safely watch with this simple viewer. It creates a focused, smaller image of the sun to help you observe the eclipse as it occurs.

Investigate: What does the sun look like during a solar eclipse?

Materials: pencil • dark construction paper • scissors • 2 inch (5 centimeter) square piece of aluminum foil • tape • pushpin • white card stock (or white paper backed with cardboard) • sunny outdoor area

PART 1: Make a pinhole viewer

1. Use a pencil to poke a hole in the middle of a sheet of dark construction paper.
2. Around the hole, draw a square that measures about 1 inch (3 centimeters) on each side. Poke your scissors through the pencil hole and cut out the square. Discard the square and keep the sheet of paper.
3. Cover the square hole in the paper with the aluminum foil. Smooth the foil so it lies flat. Tape it to the paper.
4. Carefully press a pushpin through the center of the foil, making a tiny hole. The paper and aluminum foil will block light and cast a shadow, but light will pass through the hole. Your pinhole viewer is complete!

PART 2: Safely view a solar eclipse

5. With your teacher's supervision, go outside before the solar eclipse begins so you can practice using your viewer. Bring a piece of white card stock to use as a screen. **Don't ever look directly at the sun!**
6. Place your screen on the ground in the sunlight. Crouch above the screen and position your pinhole viewer so that its shadow covers the screen. Look for a point of light in the middle of the shadow. If you don't see the point of light at first, try adjusting your position and the position of your pinhole viewer until you see it.
7. Experiment with the positions of the viewer and the screen.
 - A. Change the distance between the pinhole viewer and the screen. How can you make the point of light bigger? What happens to the brightness of the point of light as it gets bigger?

- B. Change the tilt, or angle, of the pinhole viewer or the screen. Which changes the shape of the light point more—tilting the viewer or tilting the screen?

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- 8.** Arrange your viewer and screen so that the point of light becomes a bright circle. This circle is a focused image of the sun!
- 9.** Use your viewer and screen to safely observe how the sun changes during the eclipse. **(Remember, don't ever look directly at the sun.)**

Results: Describe and draw what you saw during the eclipse.

Describe:

Draw:



Conclusions:

- 1.** How did the circle of light on your screen change throughout the eclipse?

- 2.** How did your observations compare with the illustration of a total solar eclipse in “What’s a Solar Eclipse?” (p. 17) in the article?
