

Solar Eclipse – NISEnet

Materials:

- Earth shaped beach ball/basketball/soccer ball
- Moon toy on a stick (or a smaller ball, baseball/tennis ball)
- Pump (optional)
- Cone (optional)
- Optional: Flashlight (if doing the activity indoors)
- Sizing up the Sun, Earth, and Moon information sheet
- Activity and facilitator guides



Resources:

<http://www.nisenet.org/catalog/exploring-solar-system-solar-eclipse> Activity guide, table sign, facilitator guide & info sheets. This activity requires preparing the materials beforehand.

<https://spaceplace.nasa.gov/total-solar-eclipse/en/> How is the sun completely blocked in a solar eclipse?

<https://spaceplace.nasa.gov/eclipses/en/> The difference between solar and lunar eclipses.

Important note: The balls in this activity are **NOT to scale** and do not represent an accurate size or distance comparison between the Moon, Earth, and Sun.

Learning Goals:

- A solar eclipse occurs when the Moon moves between the Sun and Earth, casting a shadow on Earth.
- A solar eclipse is a rare and beautiful event.
- People have observed and tried to explain solar eclipses for thousands of years.

Intro (example): A solar eclipse occurs when the Moon moves between the Sun and Earth, casting a shadow on Earth—but conditions have to be just right for this to happen. On a sunny day, you can make a model of an eclipse outside! Tip: You can also do this activity in a dim room, using a flashlight (instead of the Sun) as your light source.

Steps:

1. Hold the toy Moon and take two big steps back from the Earth ball. Position the Moon in between the light source and the big globe. Line up the Moon so it casts a shadow on the Earth.
2. Look carefully at the shadow. Are all parts of it equally dark? Does it cover the whole Earth?
3. Now try making the Moon's shadow move across the Earth. You're making a model of the path of a solar eclipse! During a real eclipse, what do you think people see when they look toward the Sun?

Reflection (throughout): Why don't we see a solar eclipse more often? Does the moon stay on a flat orbit?