What is a Solar Eclipse?

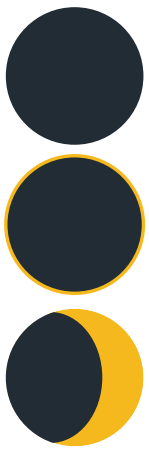
A solar eclipse occurs when the moon moves between the sun and a planet, blocking the sun's light and casting a shadow on Earth. There are between 2-5 solar eclipses around the world each year. However, a total solar eclipse occurs about once every 18 months.

Prevent Blindness
Eclipse + Your Eyes

Fun Facts About Eclipses

- The shadow of a solar eclipse can travel at speeds of more than 5,000 kilometers per hour.
- An eclipse can drop the temperature on Earth, anywhere between 5C all the way up to 20C.
- While neither Mercury nor Venus have eclipses (they have no moons), all other plants in our solar system do. Jupiter (with 79 moons!) has the most frequent eclipses.
- Animals are often misled by an eclipse, with many of them thinking day has turned to night – spiders start to dismantle their web, bats start to come out of their caves, crickets start to chirp, etc. And when the solar eclipse ends with the sunlight returning, roosters start to sing.

Types of Solar Eclipses



1. **Total solar eclipse** – The moon completely blocks the sun. A slight glow will be seen around the moon from the sun's outer atmosphere (the solar corona).
2. **Annular solar eclipse** – The sun and moon are exactly in line with Earth, but the apparent size of the moon is smaller than that of the Sun, causing a "ring of fire" effect around the moon.
3. **Partial solar eclipse** – Just as it sounds, the moon only partially blocks the sun. (There will always be a partial eclipse as the moon moves into place to cause a total or annular eclipse, but a partial eclipse can also take place without leading to a total or annular event.)

Phases of Solar Eclipses

a. **First contact** – The instant when the partial phase of an eclipse begins.

b. **Second contact** – The instant when the total or annular phase of an eclipse begins.

c. **Totality** – The sun and moon are exactly in line with the earth. Moon completely blocks the sun.

d. **Third contact** – The instant when the total or annular phase of an eclipse ends.

e. **Fourth contact** – The instant when the partial phase of an eclipse ends.

Protect your eyes from the sun!

NEVER look directly at an **annular** or **partial eclipse** without wearing ASO-approved solar eclipse safety glasses. It can cause permanent retinal damage. You can view the sun during a **total** eclipse, but only during the very brief time the sun is in ***totality*** – and even then, with caution.

How an Eclipse Can Damage Your Eyes

Exposing your eyes to the sun without proper eye protection during a solar eclipse can cause "eclipse blindness" or retinal burns, also known as solar retinopathy. This can damage or destroy cells in the retina (the back of the eye) that transmit what you see to the brain.

Damage can be temporary or permanent and occurs with no pain. It may take a few hours to a few days after viewing to realize damage has occurred. If you notice symptoms after viewing a solar eclipse, seek treatment from an eye care professional.

How to Safely Watch a Solar Eclipse

- The best way to view a solar eclipse is by using ASO- approved solar eclipse safety glasses. Other ways you may watch include on television, at a planetarium, through a pinhole projection, with welder's glass, or through mylar filters (visit **PreventBlindness.org/eclipse** to learn more about these options).
- **Do NOT view an eclipse through your smartphone camera, a camera viewfinder, or unsafe filters not specifically designed for viewing a solar eclipse.**