Photo of the Sun during the 2016 total solar eclipse. Taken on Wolei Island, Micronesia.

Solar Eclipse

A *solar eclipse* occurs when the Moon passes directly between the Sun and Earth, blocking the Sun's light and casting a shadow onto Earth. Earth continually orbits the Sun, and the Moon continually orbits Earth. Occasionally, Earth, the Moon, and the Sun line up just right, creating an eclipse.

From our vantage point on Earth, the Sun and the Moon look about the same size—but the Sun is actually about 400 times wider across than the Moon! So why do they look the same size, and how can the relatively small Moon cover the massive Sun? The Sun happens to be around 400 times farther away from Earth than the Moon is, so they appear to be nearly the same size in the sky.

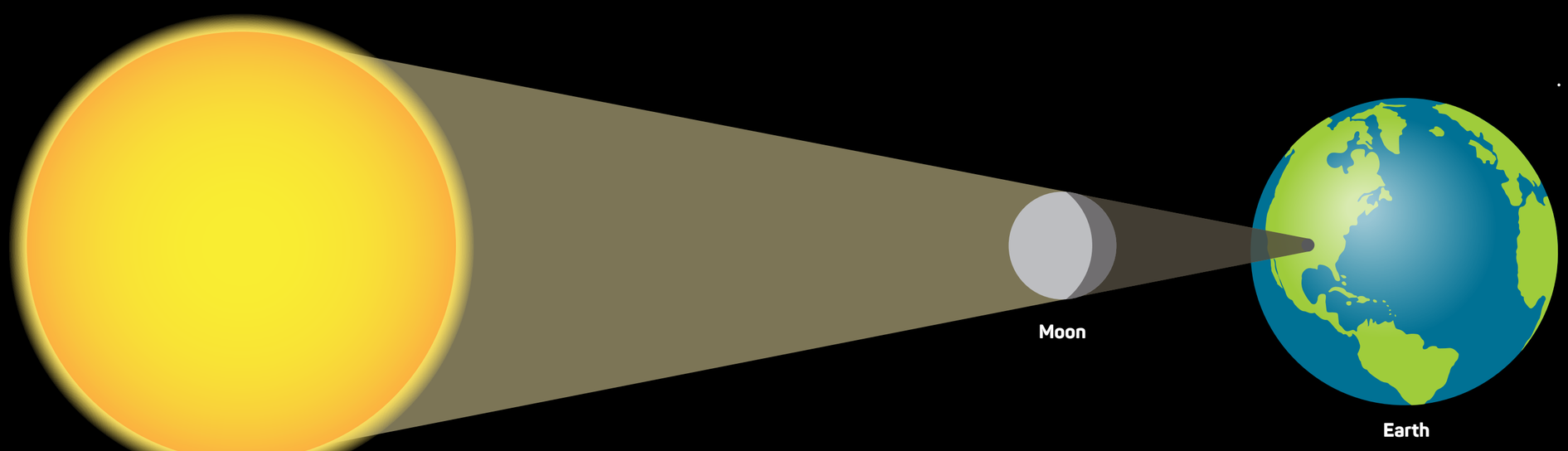


Image not to scale

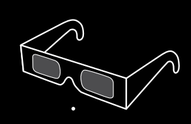
An eclipse reveals the solar system in motion

Watching a solar eclipse is a chance to experience the solar system in motion! As the Moon moves in front of the Sun, the Sun's bright light is blocked, and the Moon's shadow drifts across Earth. If you're wearing special protective eclipse glasses, you can look at the Sun and see the changing crescent shape of the Sun blocked by the Moon.

The path of totality during the 2017 North American eclipse

The Moon's shadow only reaches a small part of our planet

You can see a *total solar eclipse* only along the curved *path of totality,* a narrow band across Earth where the Moon's shadow completely blocks light from the Sun. During a total eclipse, it becomes very dark and gets cooler outside. A *partial solar eclipse,* where only some sunlight is blocked by the Moon, can be seen in a slightly wider band along the same path. At any given location along the path, the eclipse lasts only a few minutes.



Eclipse safety!

If you experience a solar eclipse, remember to avoid looking directly at the Sun. Wear special protective eclipse glasses or use other instruments as you observe the eclipse to avoid damaging your eyes.