

My NASA Data - Interactive Models

Observing the Sun During a Total Solar Eclipse

What is a solar eclipse?

Whoa! It's the middle of the day—so why is the sky getting dark?

It's a **Solar Eclipse**

A solar eclipse happens when, at just the right moment, the moon passes between the sun and Earth.

Sometimes the moon only blocks part of the sun's light. This is called a **partial solar eclipse**. Other times, the moon blocks all of the sun's light. This is called a **total solar eclipse**.

In that path, the moon completely blocks the sun's light for a few minutes. It gets so dark that it looks like night time during a full moon! If you don't know what's happening, it can be confusing. Animals can get confused too. But this total darkness can also be kind of cool for scientists who study the sun's atmosphere, called the **corona**.

As the moon blocks the sun's light, it casts a shadow on part of the Earth. The moon's shadow creates a path as Earth rotates. This path is called the **path of totality**. If you want to experience total darkness during an eclipse, you have to be in the path of totality.

The corona is very dim. It's usually hard to see because the sun is so much brighter. But, when the moon blocks the sun's light during an eclipse, all you can see is the light from the corona!

But when they do happen, the moon gives scientists—and the rest of us—a glimpse at the corona's beautiful streams and ribbons.

Thanks, moon!

Total solar eclipses over the land—where people can see them—don't happen very often.

YOU'RE WELCOME!

U.S. TOTAL SOLAR ECLIPSES

Year	Month	Day
2017	August	21
2024	April	8

Note: For information about how to safely view an eclipse, go here: <https://eclipse2017.nasa.gov/safety> For more information, visit spaceplace.nasa.gov/eclipse-snap

Teachers who are interested in receiving the answer key, please complete the [Teacher Key Request and Verification Form](#). We verify that requestors are teachers prior to sending access to the answer keys as we've had many students try to pass as teachers to gain access.



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Grade Band

- 6-8
- 9-12

Supported NGSS Performance Expectations

- [MS-ESS1-1: Develop and use a model of the Earth-Sun-Moon system to describe the cyclic patterns of lunar phases, eclipses of the Sun and Moon, and seasons.](#)

NGSS Disciplinary Core Ideas

- PS2A: Forces and Motion
- PS4A: Wave Properties
- ESS1A: The Universe and its Stars
- ESS1B: Earth and the Solar System

Science and Engineering Practices

- Developing and Using Models

Crosscutting Concepts

- Scale, Proportion, and Quantity
- Systems and System Models

Related Resources

- [What is GLOBE Observer Eclipse?](#)
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- [NASA Heliophysics Education Activation Team \(NASA HEAT\)](#)