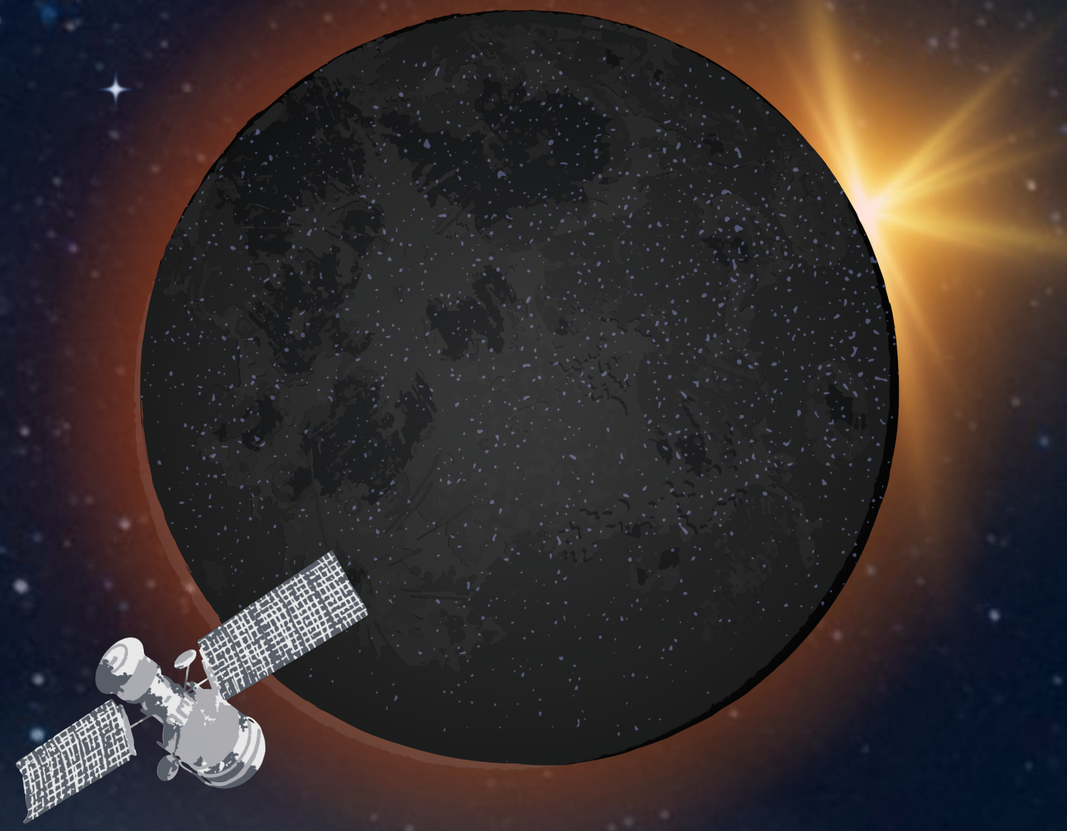
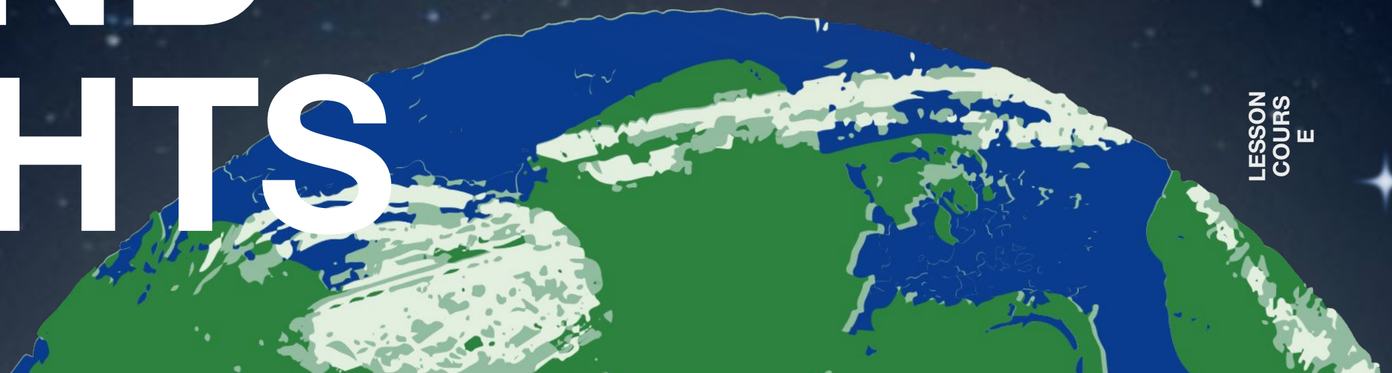
ORION

The Eclipse
Explorer’s Guide:

ECLIPSE FACTS AND HIGHLIGHTS





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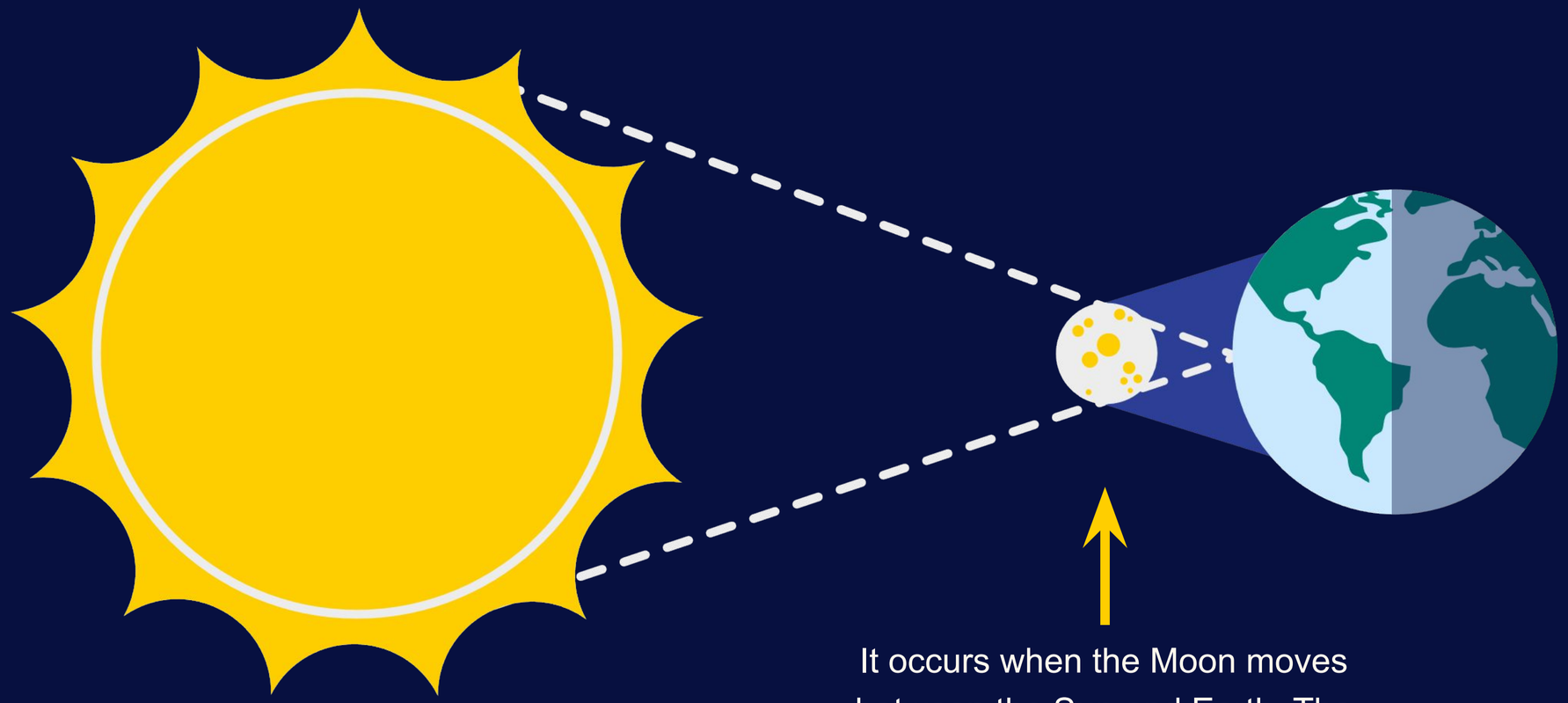
Eclipse:perspective is everything

A brief introduction to the types and importance of solar eclipse

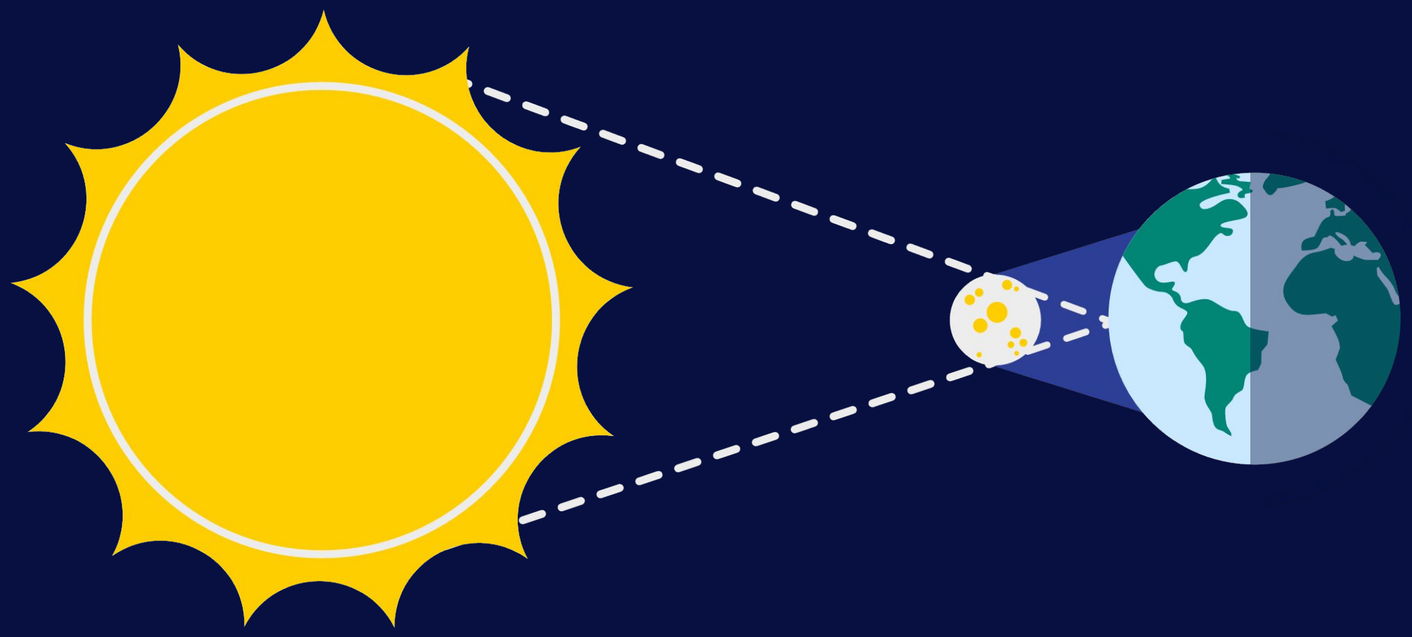
Solar Eclipse

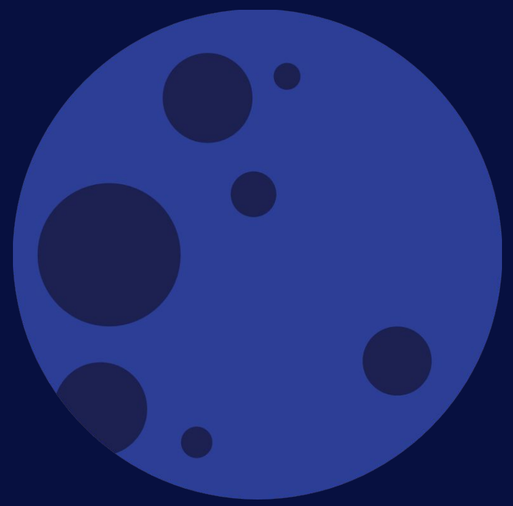


It occurs when the Moon moves between the Sun and Earth. The Moon blocks the light from the Sun and casts a shadow onto Earth.

Types of Solar Eclipses

Total

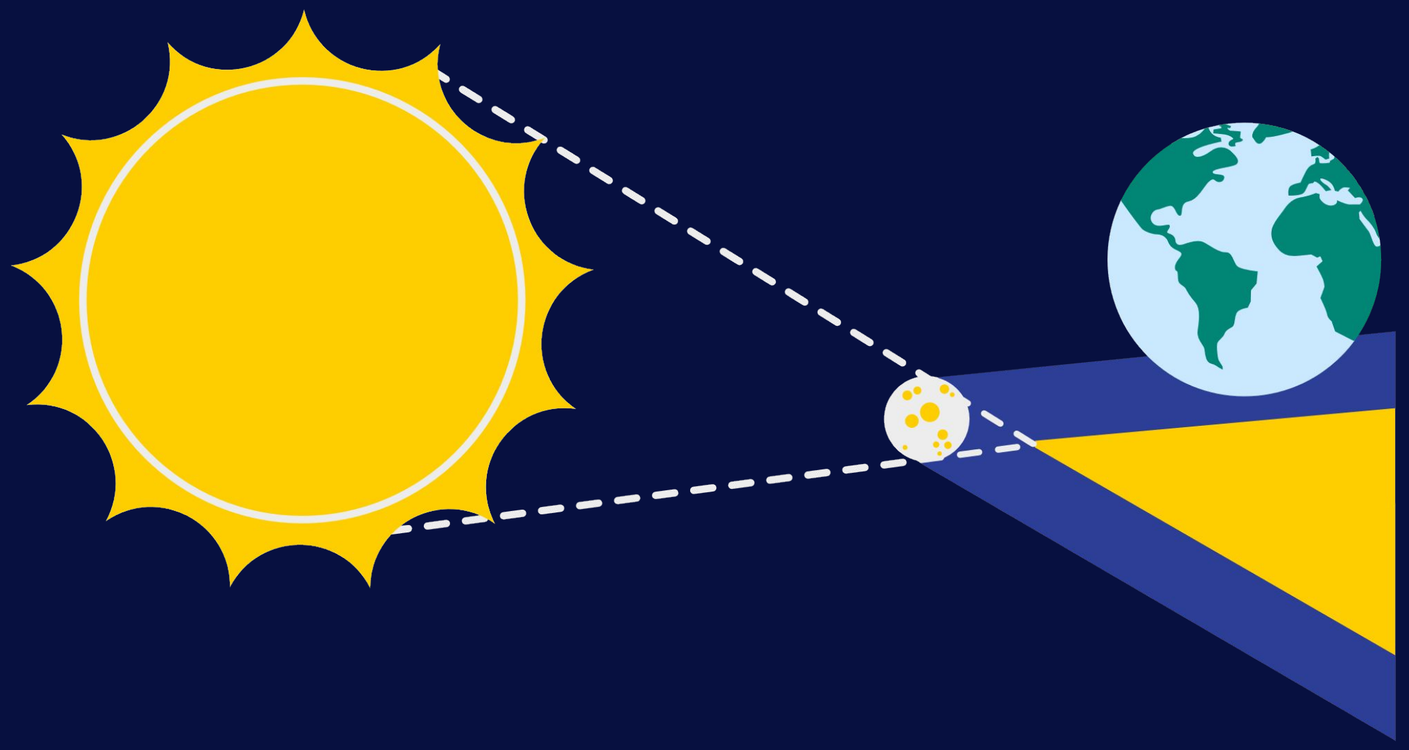


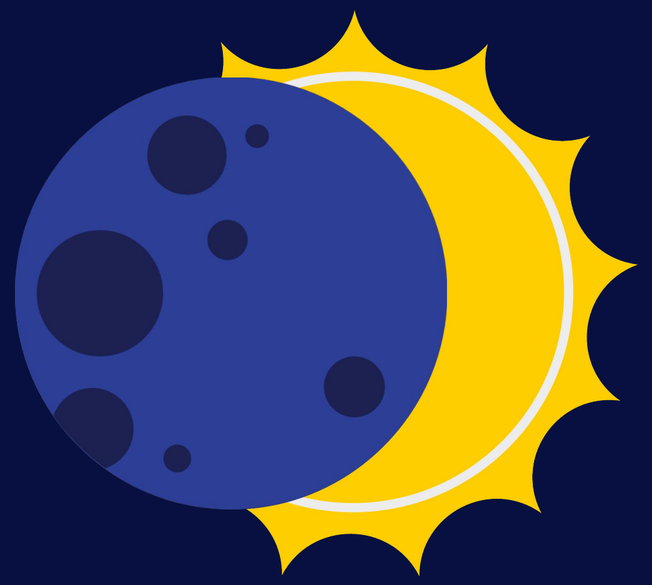


The Sun, Moon, and Earth are directly in

The Moon completely blocks the

Partial

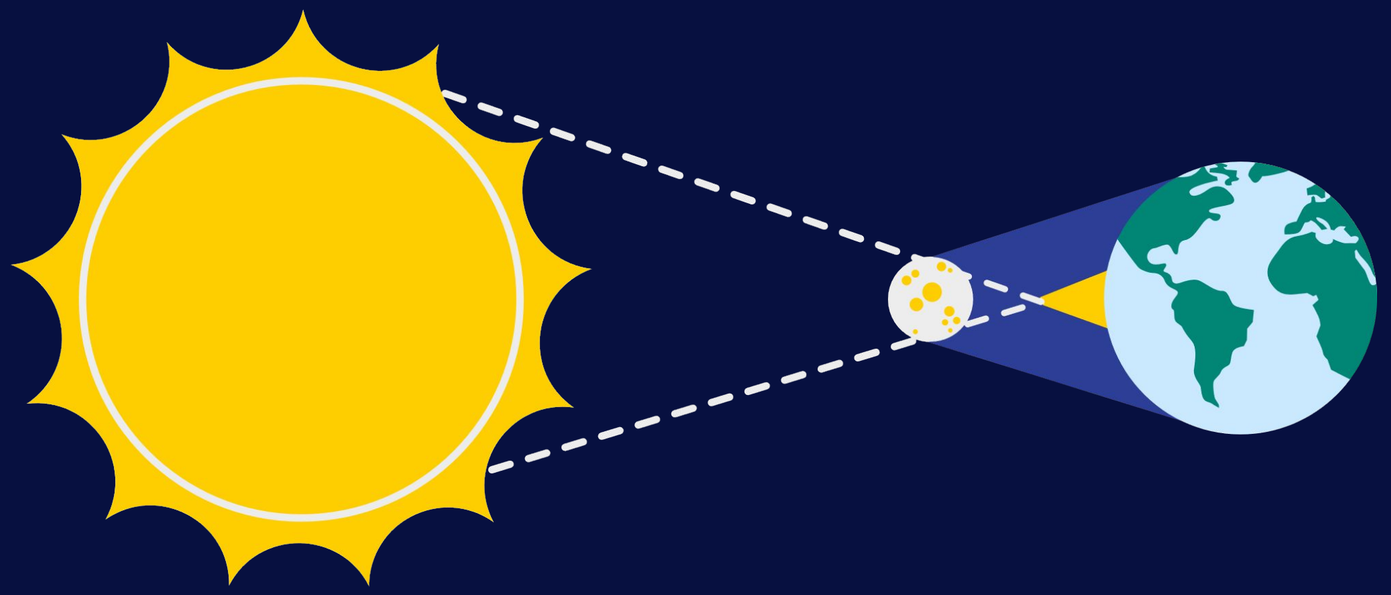


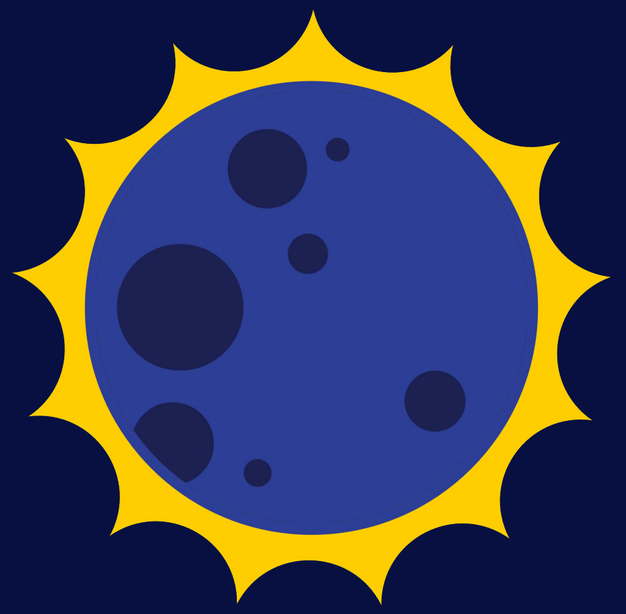


The Sun, Moon, and Earth are not exactly

portion of the Sun can

Annular





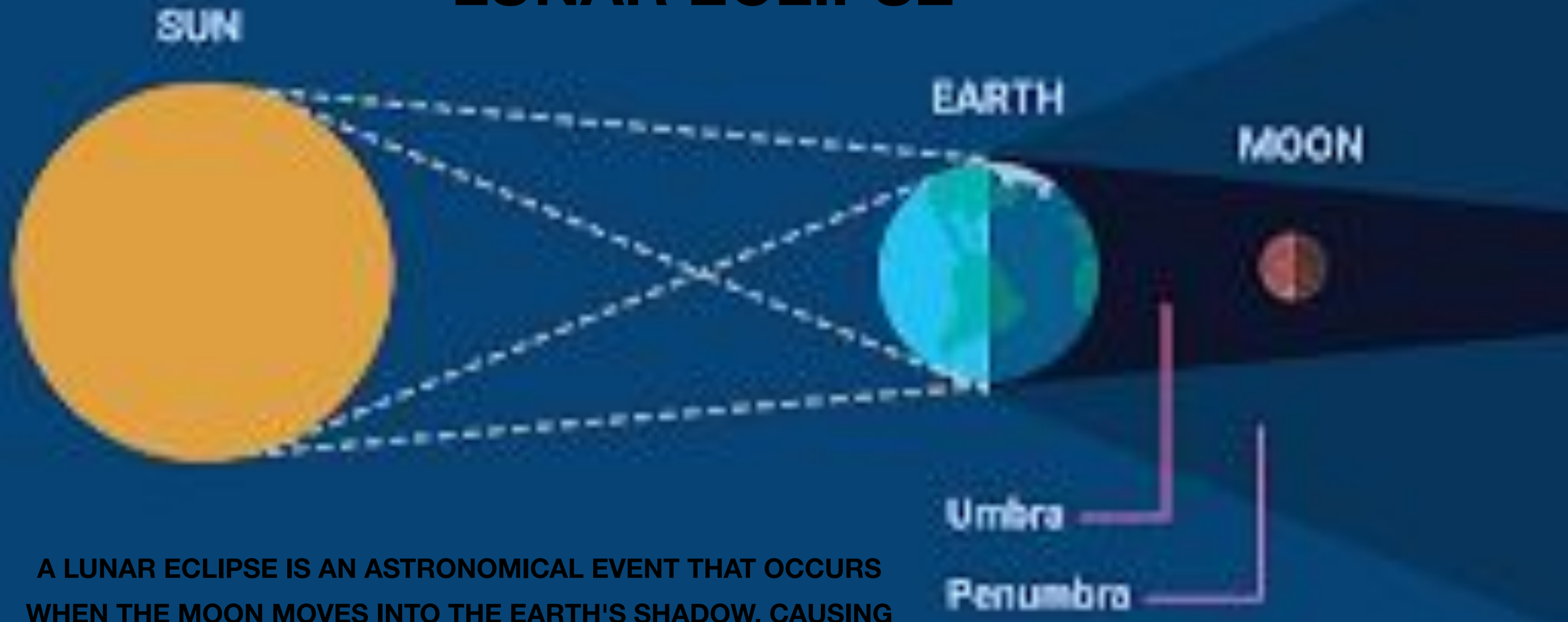
The Sun, Moon, and Earth are not exactly

does not completely block the Sun but

6 Minutes
38.86 Seconds

This is the longest duration of a total solar eclipse in the 21st century, which happened last July 22, 2009.

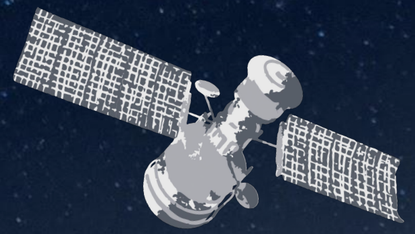
LUNAR ECLIPSE



A LUNAR ECLIPSE IS AN ASTRONOMICAL EVENT THAT OCCURS WHEN THE MOON MOVES INTO THE EARTH'S SHADOW, CAUSING THE MOON TO BE DARKENED

Types of Lunar Eclipse

A lunar eclipse can be seen from Earth at night--it can only occur when the Moon is full. There are three types of Lunar Eclipse: Total Lunar Eclipse, Partial Lunar Eclipse, and Penumbral Lunar Eclipse.



There are three kinds of Lunar Eclipses:

1. **Total** Lunar Eclipse
2. **Partial** Lunar Eclips
3. **Penumbral** Lunar Eclipse

1

Total Lunar Eclipse

A total lunar eclipse occurs when the Moon and the Sun are on exact opposite sides of Earth. Although the Moon is in Earth's shadow, some sunlight reaches the Moon. The sunlight passes through Earth's atmosphere, which filters out most of the blue light. This makes the Moon appear red to people on Earth.

Partial Lunar Eclipse

An imperfect alignment of Sun, Earth and Moon results in a part of the Moon entering Earth's shadow. In a partial eclipse, Earth's shadow appears very dark on the side of the Moon facing Earth. The shadow grows and then recedes without ever entirely covering the Moon.

2

3

Penumbral Lunar Eclipse

The Moon travels through Earth’s penumbra, or the faint outer part of its shadow. The Moon dims so slightly that it can be difficult to notice. If you don’t know this one is happening, you might miss it.

Importance of Studying Solar Eclipse

Scientists use solar eclipse to study the following:

- Sun's corona
- accurately measure the Sun's diameter over time

Difference between solar and lunar eclipses

Solar Eclipse	Lunar Eclipse
Solar eclipse is the one in which the moon is in between the earth and the sun.	Lunar eclipse is the one in which the earth is in between the sun and the moon.
It occurs once in 18 months.	It occurs twice a year.
It lasts for about 5-7 minutes.	It lasts for an hour.
It is witnessed in a few places.	It is witnessed in many places.
It occurs during day time.	It occurs during night time.
The solar eclipse happens in the new moon phase.	When the moon is in its full moon phase, a lunar eclipse happens.
If you look directly, then there are high chances of losing vision as it damages the retina.	Witnessing a lunar eclipse with bare eyes is harmless as it does not cause any damage to the eyes.

Why do only some people see an eclipse at given time?

But not everyone experiences every solar eclipse. Getting a chance to see a total solar eclipse is rare. The Moon's shadow on Earth isn't very big, so only a small portion of places on Earth will see it. You have to be on the sunny side of the planet when it happens.

how do scientists know when and where will eclipse occur?

The sky becomes very dark, as if it were night. For a total eclipse to occur, the Sun, Moon and Earth must be in a direct line. Partial solar eclipse: This happens when the Sun, Moon and Earth are not exactly aligned. The Sun appears to have a dark shadow on a small part of its surface.

What did we learn today?

Solar Eclipse
The Moon blocks the light from the Sun.

Lunar Eclipse
A lunar eclipse occurs when the Sun, Earth, and Moon align so that the Moon passes into Earth's shadow

What can we learn from eclipse?

For over a century, solar eclipses helped scientists decipher the Sun's structure and explosive events , find evidence for the theory of general relativity, and discover a new element, among other things.

THANK YOU

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