

The image features a bright yellow background. On the right side, there is a large, curved, blue shape that resembles a stylized arc or a portion of a circle. In the center of the image, the word "ECLIPSES!" is written in a bold, orange, sans-serif font with a slight shadow effect.

**ECLIPSES!**

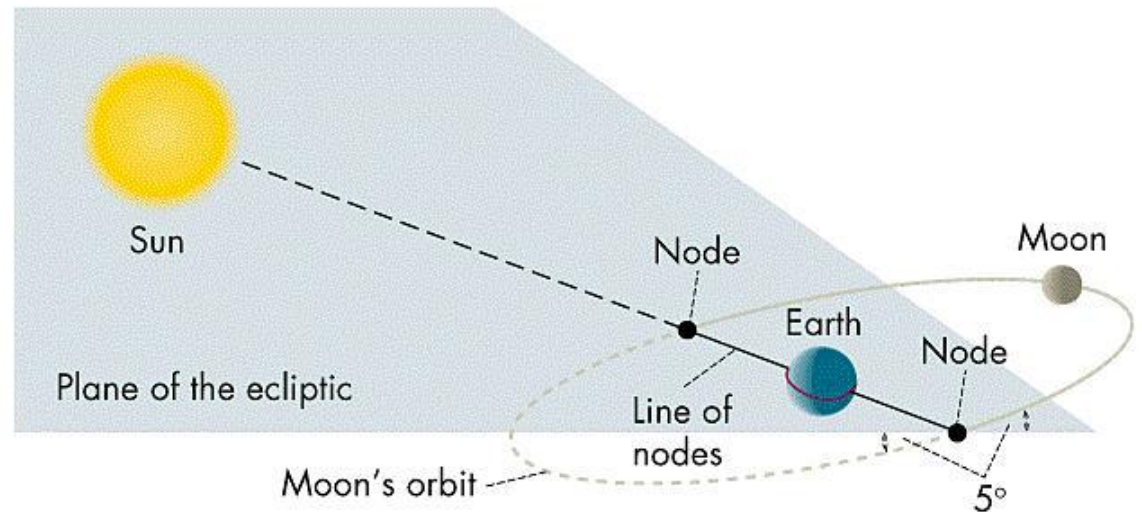
# Eclipse

**When the moon's shadow hits Earth or Earth's shadow hits the moon, an eclipse occurs**

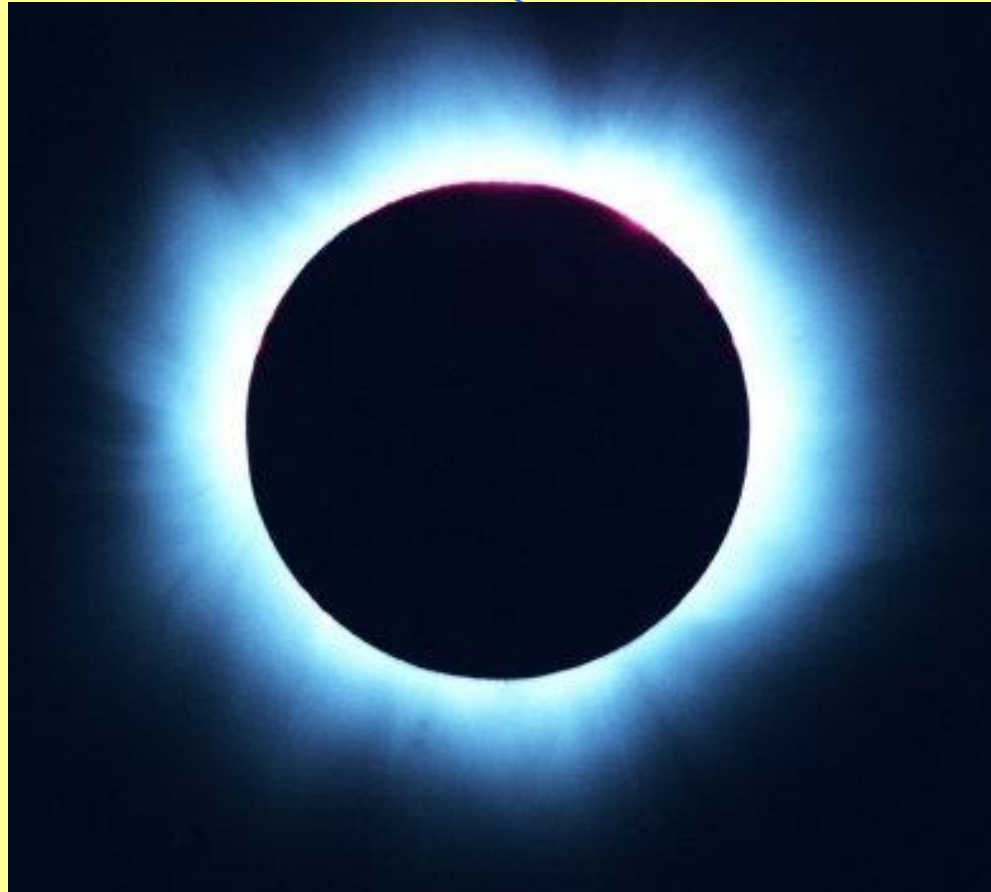


# The Moon's Tilted Orbit

- The moon's orbit is tilted by 5 degrees, so it is infrequent for the sun, moon, and earth to all line up. When these objects do align, eclipses occur.



# Solar Eclipse: Sun-Moon-Earth



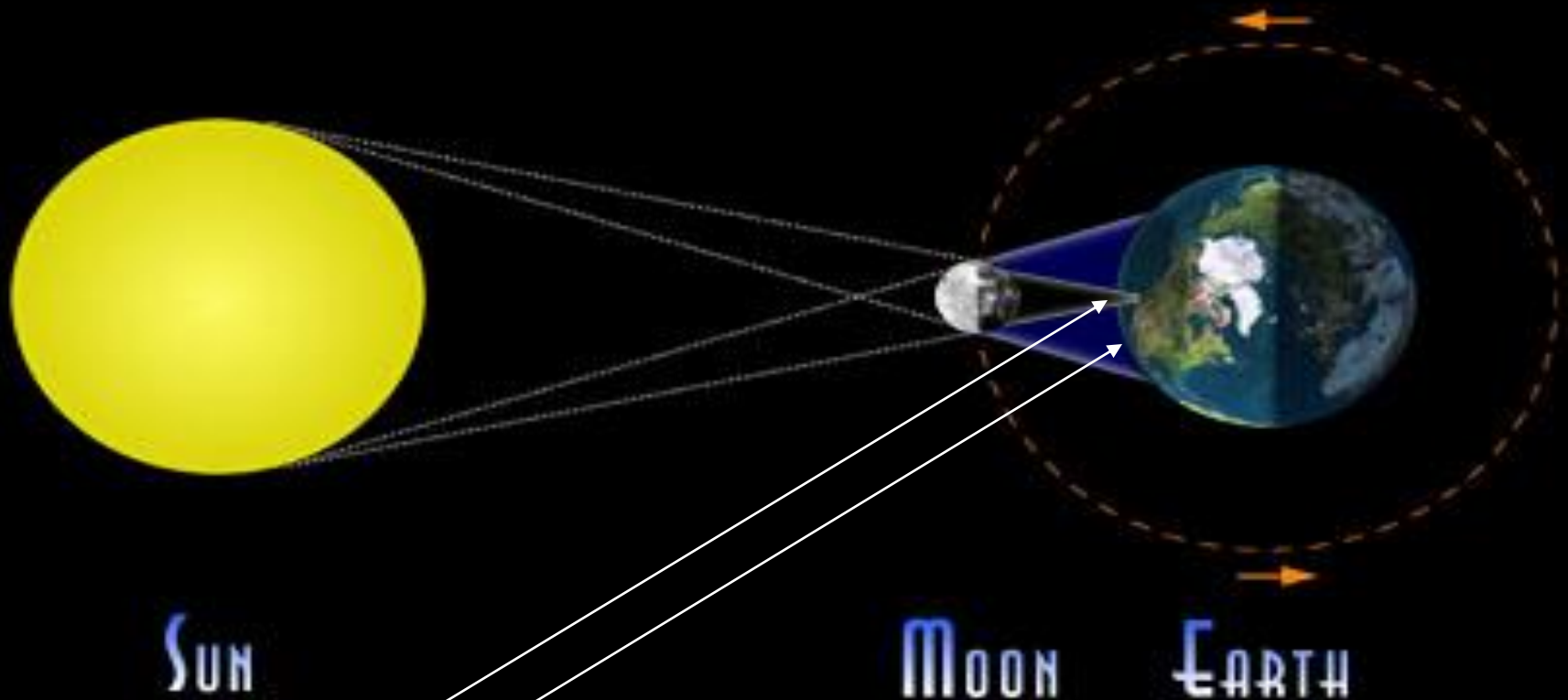
*During which moon phase is this possible??*

# Types of Eclipses

- Solar eclipse – solar is Latin for sun
- Occurs when the moon passes directly between Earth and the sun, blocking sunlight from Earth
- Lunar eclipse- lunar is Latin for moon
- Occurs when Earth blocks sunlight from reaching the moon



# SOLAR ECLIPSE GEOMETRY



SUN

MOON

EARTH

[www.MrEclipse.com](http://www.MrEclipse.com)

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**UMBRA: darkest spot—seen in one location**

**PENUMBRA: shadowed part—seen in many areas**



- **Total Solar Eclipse**

- Light from the sun is completely blocked by the moon; within the *umbra*
- **Umbra**- the very darkest part of the moon's shadow on Earth

- **Partial Solar Eclipse**

- Part of the sun is visible from Earth within the *penumbra*
- **Penumbra**- larger part of the moon's shadow on Earth



Annular Eclipse: The Sun and Moon are directly in line with the Earth, but the moon appears smaller  
*(it is further away from us)*



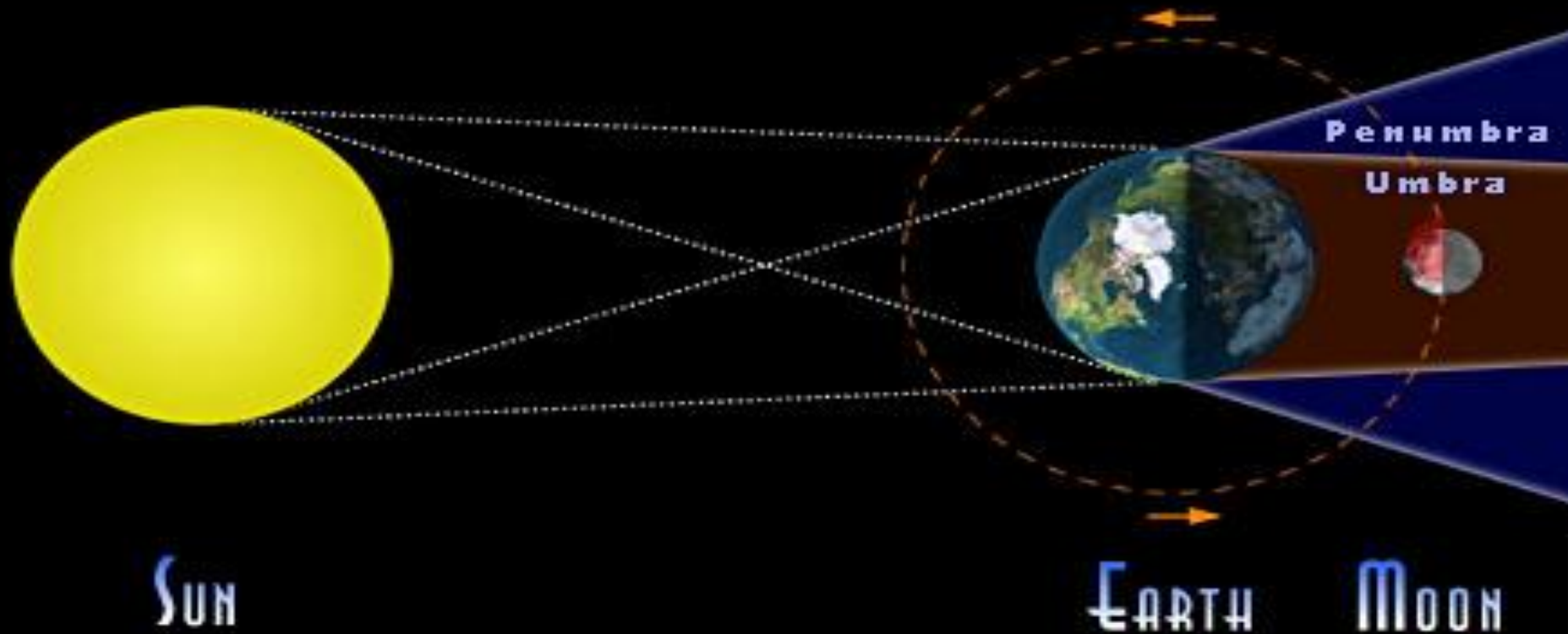


# Lunar Eclipse: Sun-Earth-Moon



*During which moon phase is this possible??*

# LUNAR ECLIPSE GEOMETRY



**UMBRA:** darkest part—seen from anywhere

**PENUMBRA:** shadowed part—seen from space

## Total Lunar Eclipse

When the moon is in Earth's umbra, a total lunar eclipse occurs.

- Can be seen anywhere on Earth that the moon is visible



## Partial Lunar Eclipse

Occurs when the moon passes partly into the umbra of Earth's shadow; can appear orange

- The edge of the umbra appears blurry, and you can watch it pass across the moon for two or three hours.



**End eclipses**