

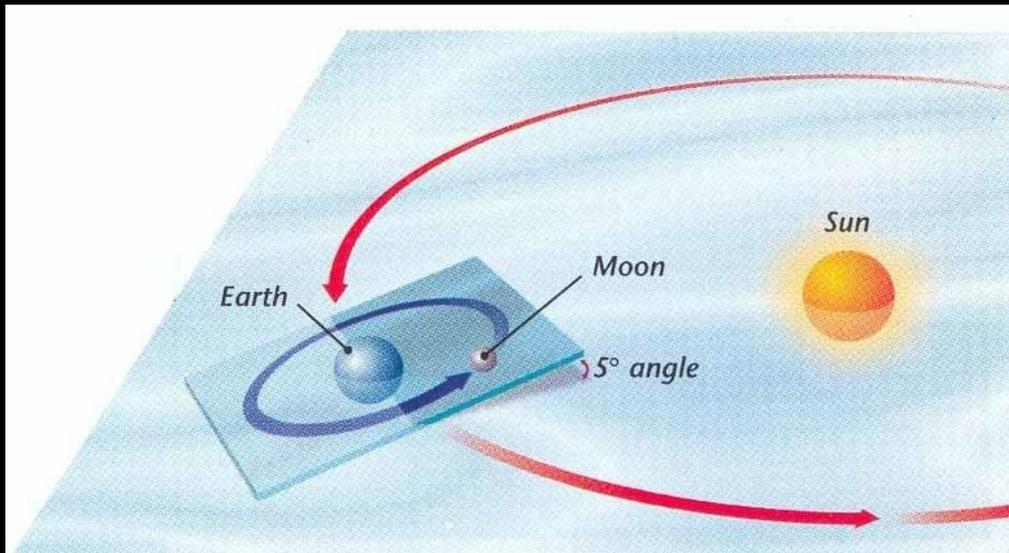
Eclipses



What is the length of time from a new moon to the next new moon?

- 29.5 Earth days
- Moon rotates and revolves around the Earth every 27.3 days
- Since Earth is revolving it takes an extra 2.2 Earth days for the sun, moon and Earth to line up, causing the next new moon

*How large is the angle between
Earth's orbit and the moon's orbit?*



- The angle between Earth's orbit and the orbit of the moon is 5°

When does an eclipse occur?

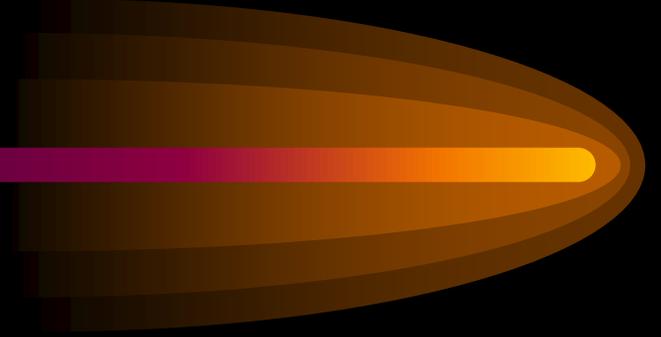


- In the rare occasion when the moon or Earth becomes directly between the sun and the other one and casts a shadow on that object

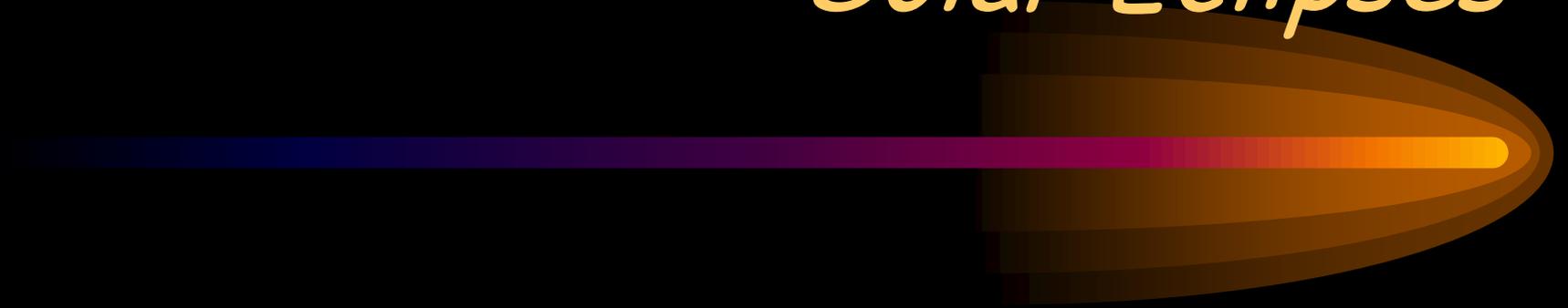
The two types of eclipses are

_____ & _____.

- lunar
- solar



Solar Eclipses

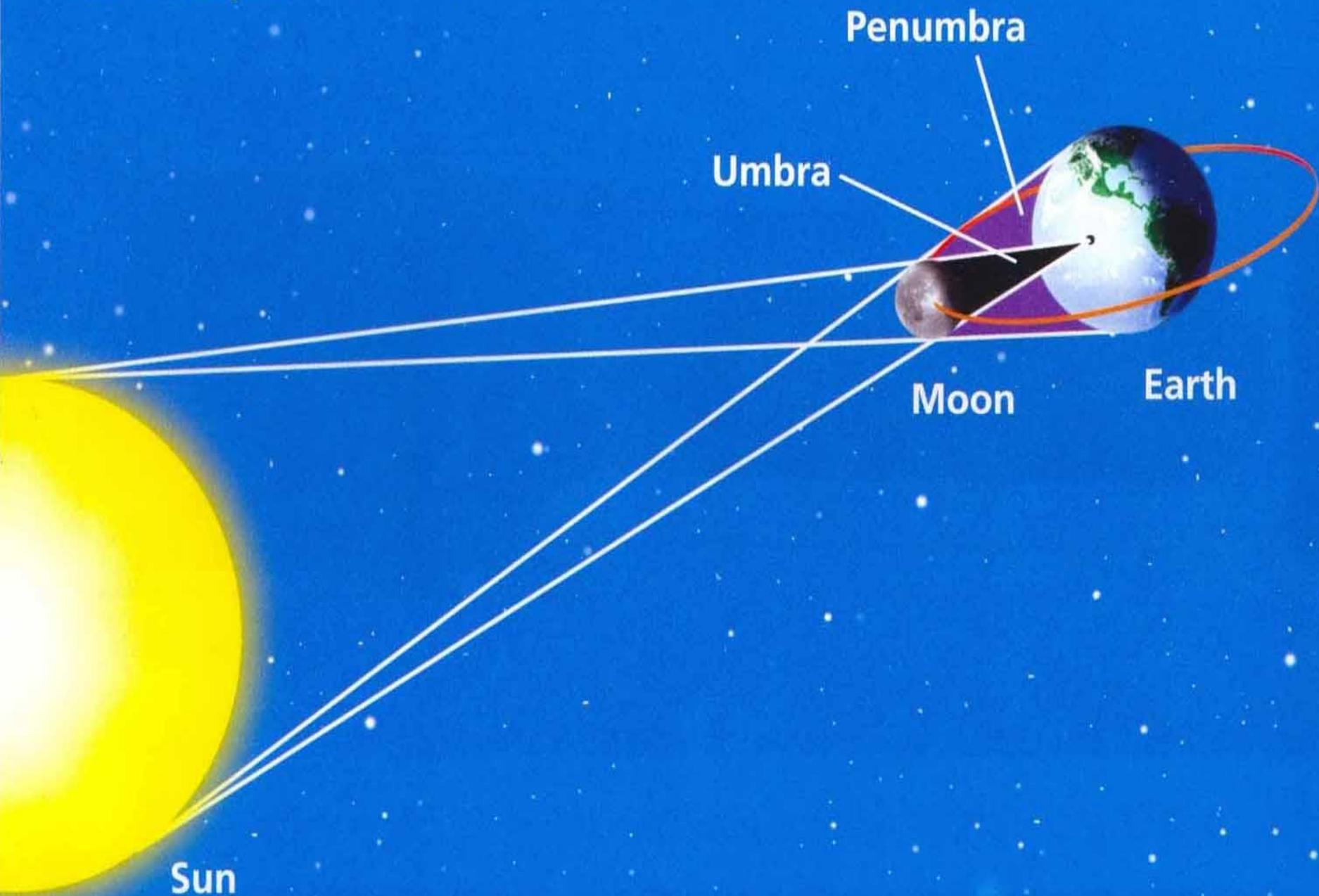


Solar Eclipse



- A solar eclipse occurs when the moon comes directly between the sun and Earth
- The moon blocks Earth from sunlight and cast a shadow
- Earth's sky becomes darker and you can only see the corona of the sun

Solar Eclipse

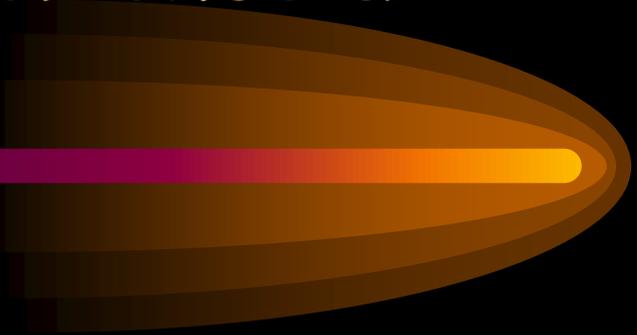


*At what phase of the moon
could a solar eclipse occur?*



- A new moon when the moon becomes directly between the sun and Earth

Why are the people in the umbra the only ones that experience a total solar eclipse?



- The umbra is the darkest part of the of the moon's shadow
- People who are in the umbra are in the darkest part of the shadow where the moon is almost completely blocking sunlight from reaching Earth, except for the sun's corona

Penumbra

- The larger less dark shadow cast by the moon during a solar eclipse and by Earth during a lunar eclipse is called the penumbra

Lunar Eclipses

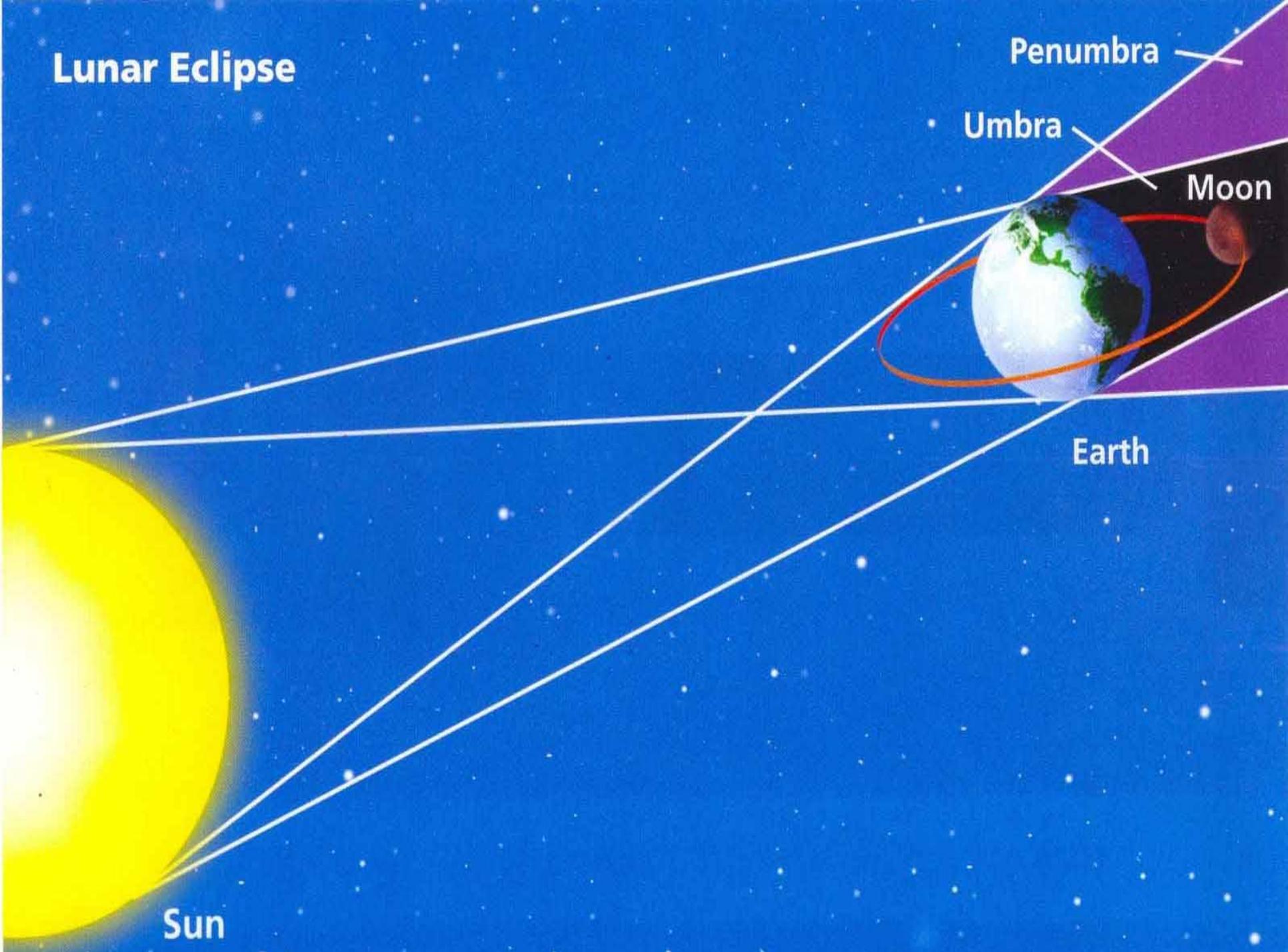


What is a lunar eclipse?



- A lunar eclipse occurs when Earth comes directly between the sun and moon
- Earth blocks the moon from sunlight and cast a shadow
- The moon turns a red/orange color

Lunar Eclipse



Penumbra

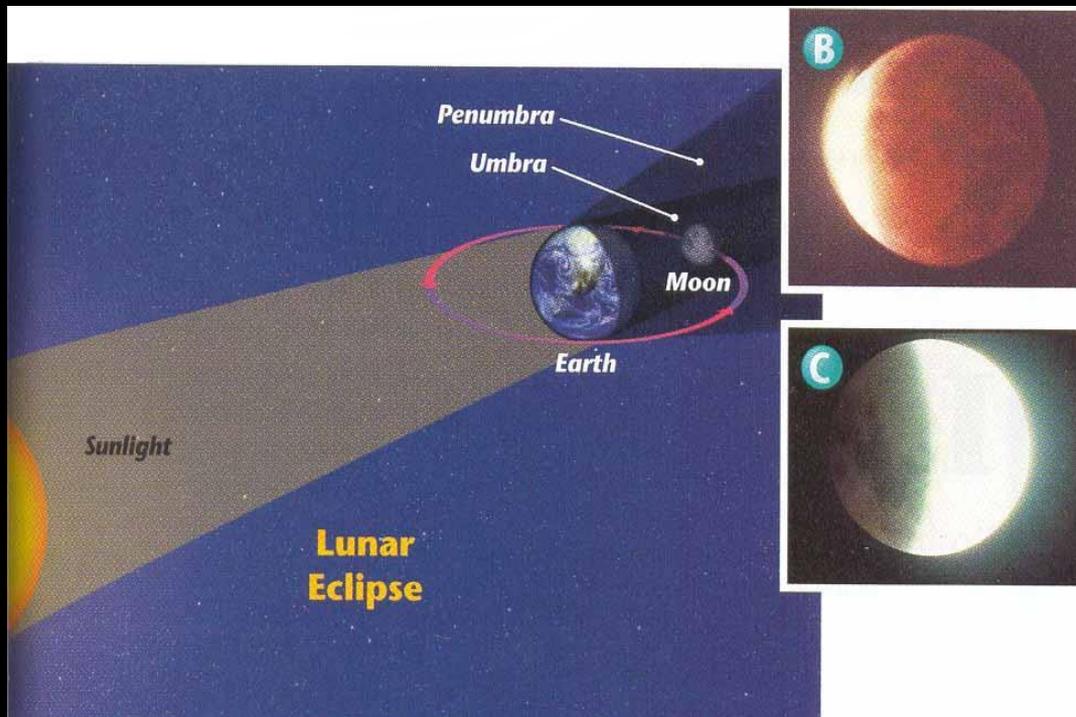
Umbra

Moon

Earth

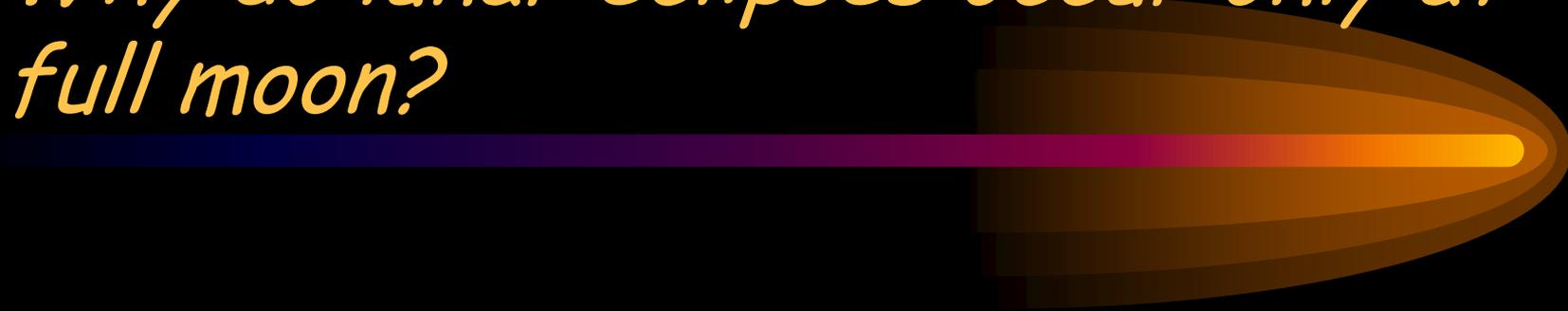
Sun

What is the difference between the umbra and penumbra?



- The umbra is in the area of total darkness
- The penumbra is the area of partial darkness

Why do lunar eclipses occur only at full moon?



- Earth must come between the sun and the moon during a lunar eclipse; this only happens during the full moon phase.

What causes solar and lunar eclipses?



- When the moon's shadow hits Earth or Earth's shadow hits the moon, an eclipse occurs.
- Eclipses occur when the moon's orbit which is tilted becomes in line with the sun, moon and Earth and they all line up perfectly

Which type of eclipse are you most likely to see?

- You are more likely to see a lunar eclipse because the umbra of a solar eclipse is so small, that only a few locations can see the total solar eclipse.
- The shadow of the lunar eclipse can be seen from anywhere the moon is visible from Earth.

The two different eclipses

Solar Eclipse

Lunar Eclipse



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