

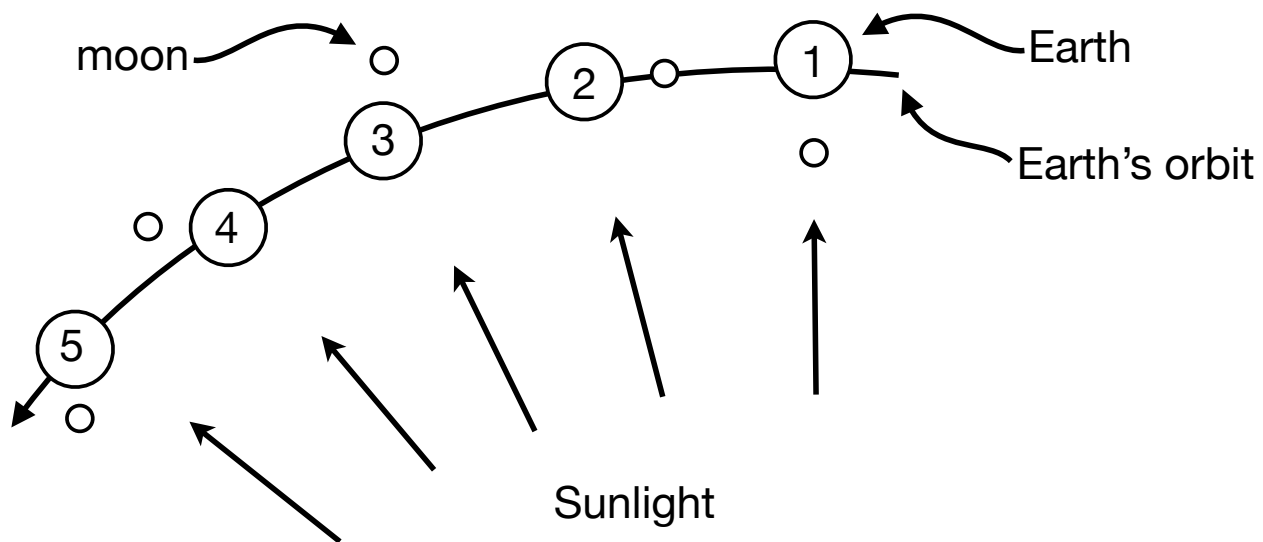
Moon Phases

The moon's revolution around the Earth takes **27.3 days**

The cycle of phases takes **29.5 days**
(how long it takes for us to see all of the phases of the moon)

The cycle of phases is longer than the Moon's period of revolution because the Earth is revolving around the sun

Below is a diagram showing the moon revolving around the Earth, as the Earth revolves around the Sun



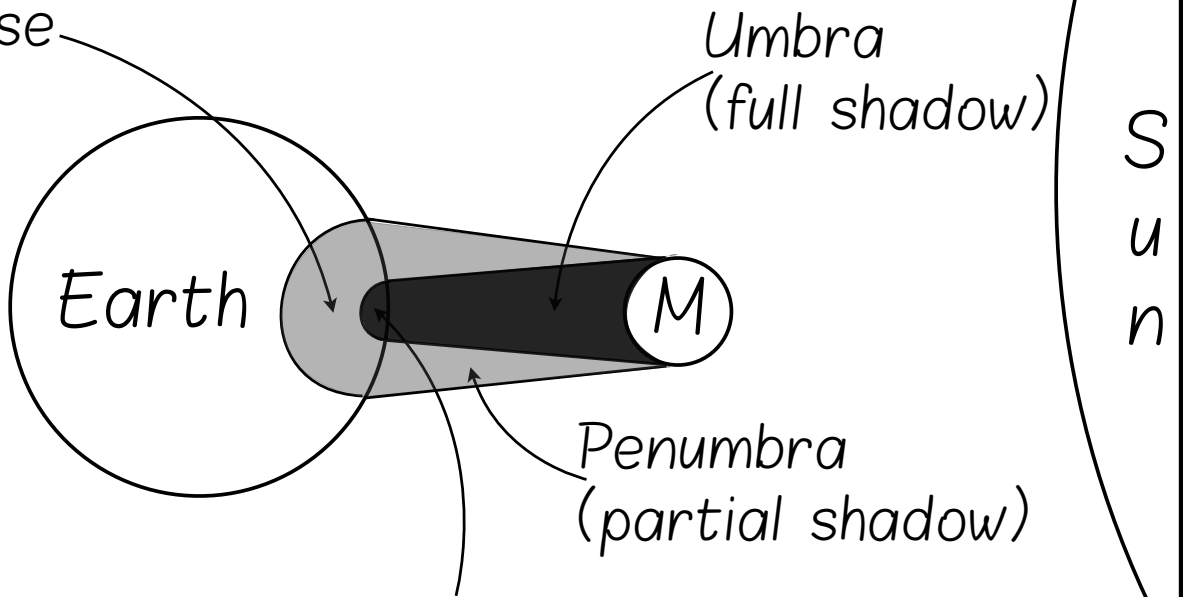
Notice in position 1, the moon is directly between the Earth and the Sun

But by position 5, even though the moon is directly below the Earth again, it is no longer between the Earth and Sun. The Moon must travel 2.2 more days to be exactly between the Earth and Sun (new moon)

Solar Eclipse

- Sun is blocked by the Moon (Moon's shadow falls on Earth)
- Can only occur in new moon phase

Partial Eclipse



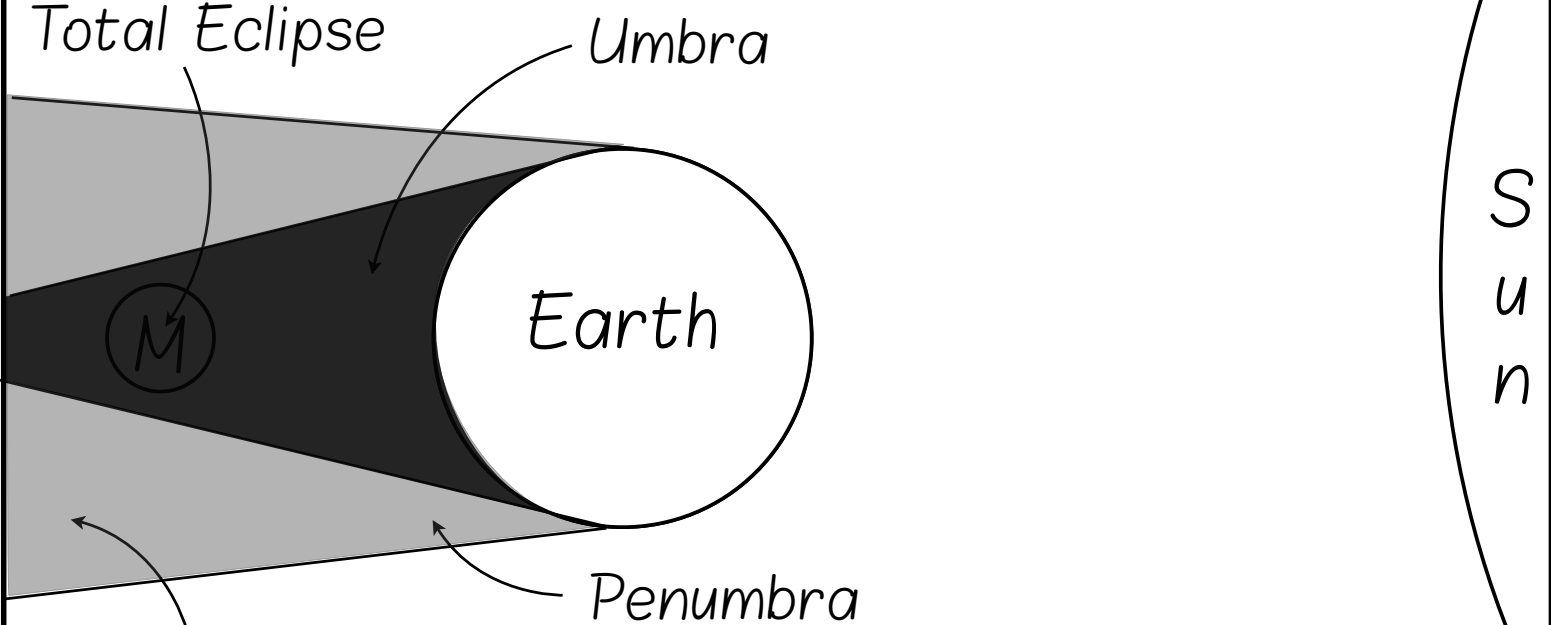
M=moon

Total Eclipse

Lunar Eclipse

- Moon is blocked by Earth's shadow (Earth's shadow falls on Moon)
- Can only occur in full moon phase

Total Eclipse



Partial Eclipse

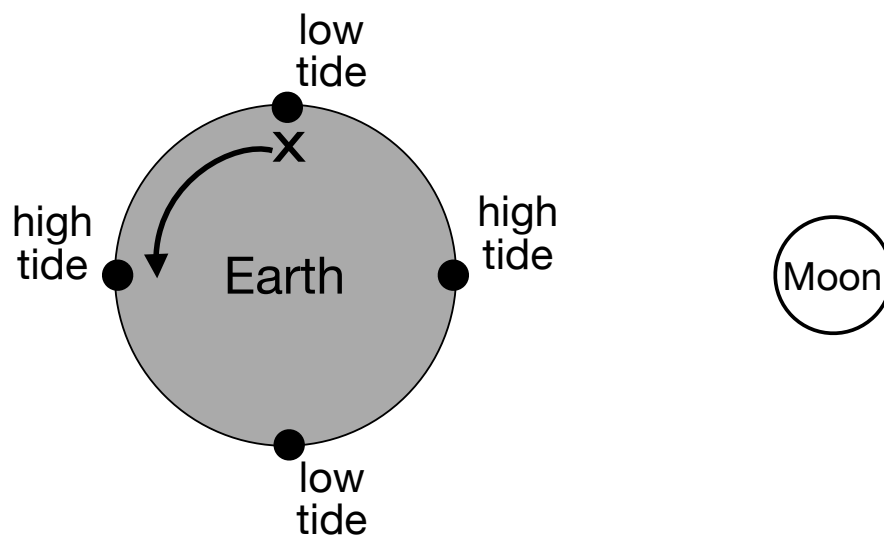
M=moon

Tides

Gravity between the moon and Earth causes a cyclic rise and fall in ocean waters

Locations in line with the moon have the strongest pull and the highest tides

As the Earth rotates, a location (labeled x) will experience high and low tides.

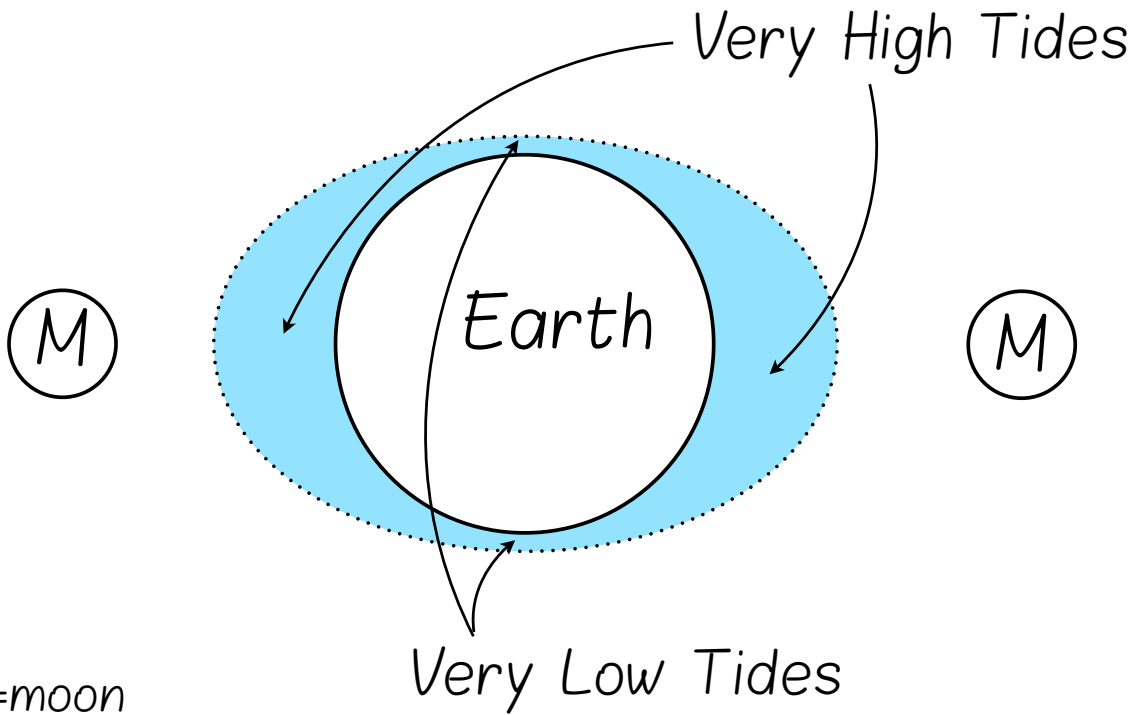


Tides occur because the moon's gravity pulls the water closest to it

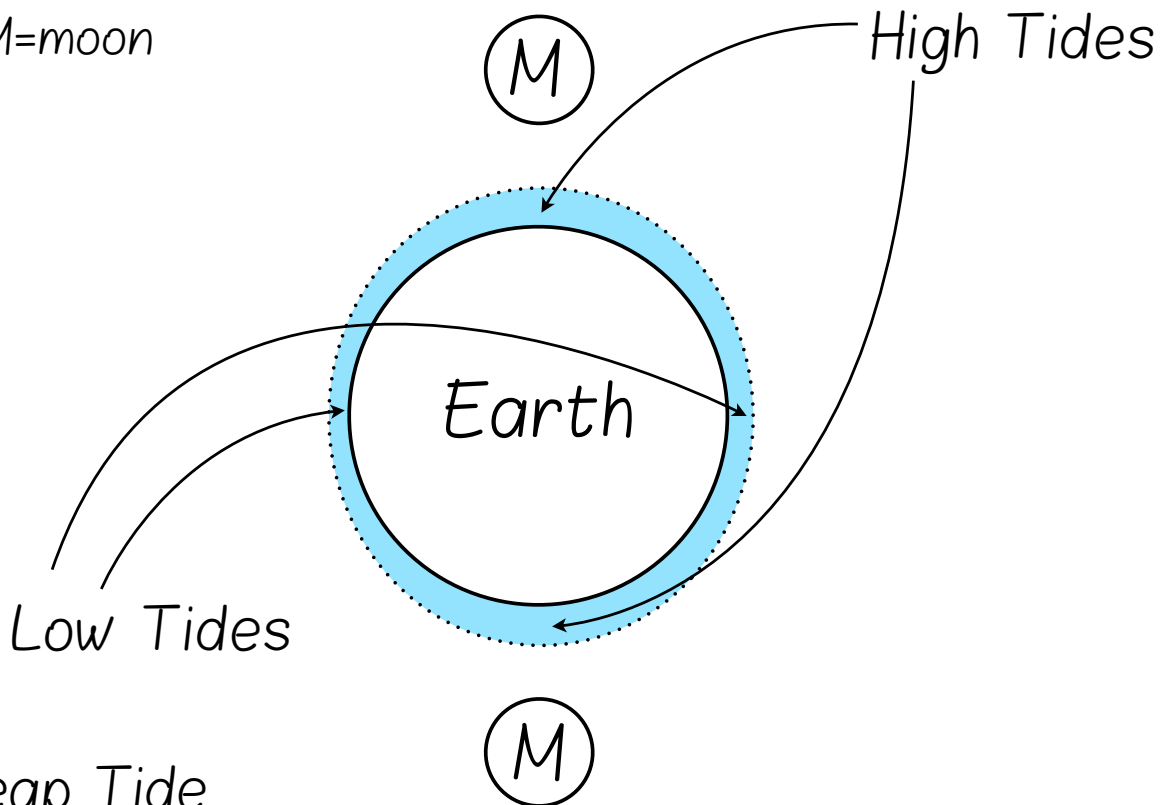
- 4 Tides in 24 hours
- Each day there are two high tides and two low tides
- 6 hours between high tide and low tide
- 12 hours between high tide and the next high tide

Spring Tide

- Very High and Very Low Tides
- Can occur in new moon and full moon phases



M=moon



Neap Tide

- High and Low Tides are less extreme
- Can occur in 1st quarter moon and 3rd quarter moon phases