**The Moon:**

**Unit 4: Astronomy**

**Mini-Unit:** Our Solar System

**Goal 3: The student will demonstrate the ability to explain the role and interaction of revolution, rotation, and gravity on the components of the Sun-Moon-Earth system.**

Objectives – The student will be able to:

* Describe the Sun-Moon-Earth system
* Explain how the movements and distances (perigee, apogee) between Earth and Moon produce tides including the relationship between phases and tides and tidal bulge and rate of lunar revolutions
* Explain the length of visibility of the moon, the monthly variations in lunar position, and how often eclipses occur per year

**Textbook:** Unit 8, Chapter 28, pg. 719

Earth’s Moon:

Satellite:

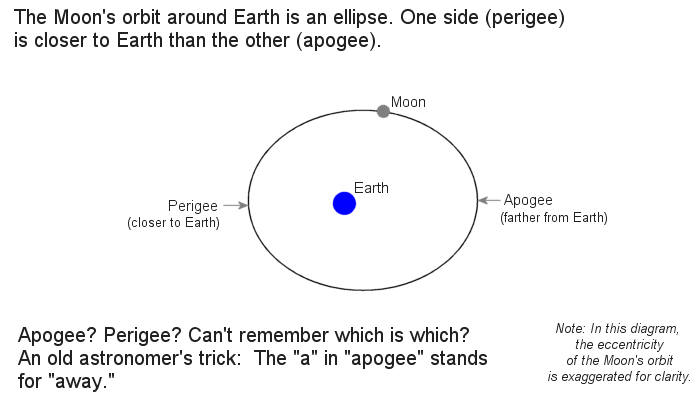
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: A celestial body that revolves around a body that is larger in mass; a natural satellite

Characteristics of the Moon:

1. The moon has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the gravity of the Earth
2. Has no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, so temperatures range from 134 degrees to -170 degrees Celsius
3. Mare –
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – deep depressions on the surface of the moon from collisions a billion years old
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – dust and rock created from repeated meteorite collisions that covers the Moon’s surface

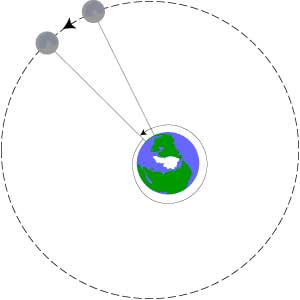
The Formation of the Moon:

Movements of the Moon:



The moon orbits the Earth on an ellipse:

1. Apogee:
2. Perigee:

Moonrise & Moonset:

The moon rises or sets about 50 minutes later each day because the Earth’s rotation has to catch up to the Moon’s revolution

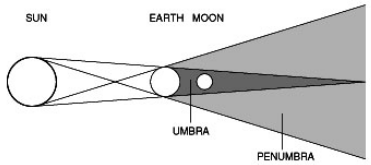
It takes the moon \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to revolve around the Earth

Eclipses:

Eclipse: An event in which the shadow of one celestial body falls on another

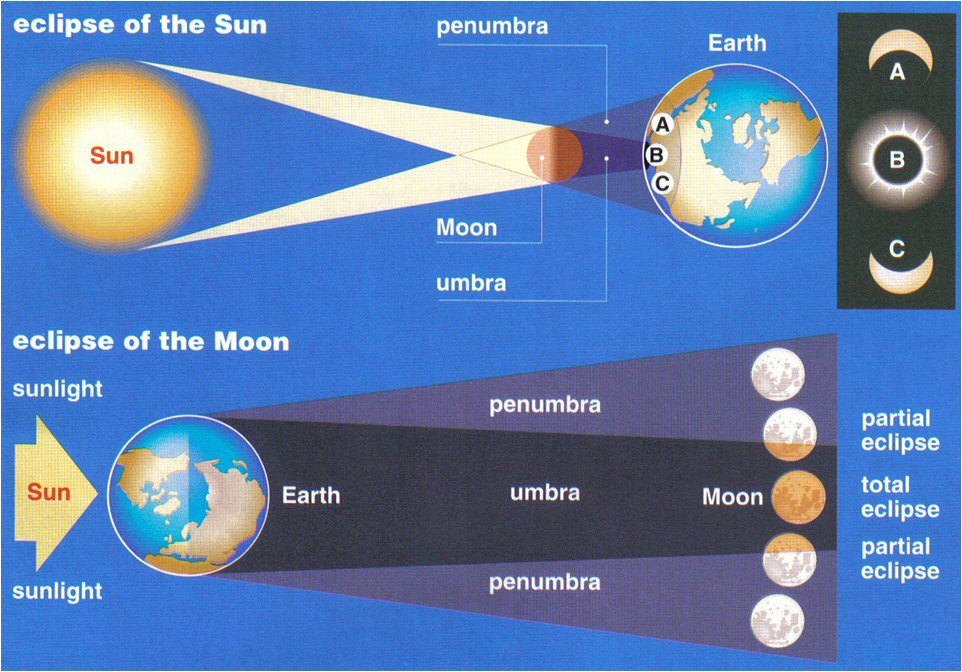
Two Parts:

1. Umbra –
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – outer part in which sunlight is only partially blocked

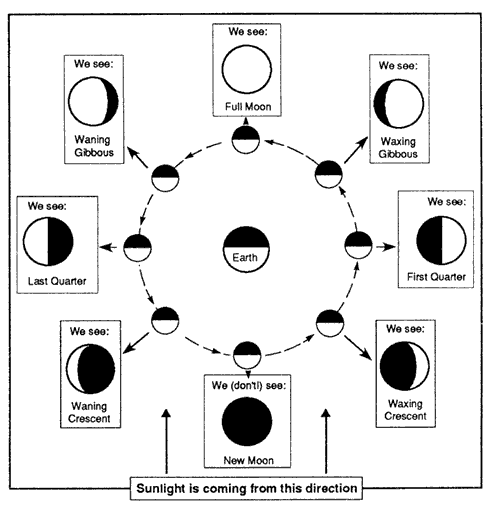


Solar Eclipse:

Lunar Eclipse:



Phases of the Moon:



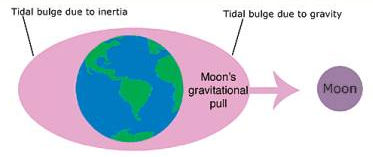
Phase:

Moon phases are caused by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ around the Earth and the light from the Sun reflected

Terms:

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – we only see the non-illuminated side of the moon
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – the amount of illumination is getting larger (New to Full Moon)
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – we see the entire illuminated side of the moon
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_– the amount of illumination is getting smaller (Full Moon to New Moon)
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – When less than half of the moon is illuminated
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – When more than half of the moon is illuminated

Tides:



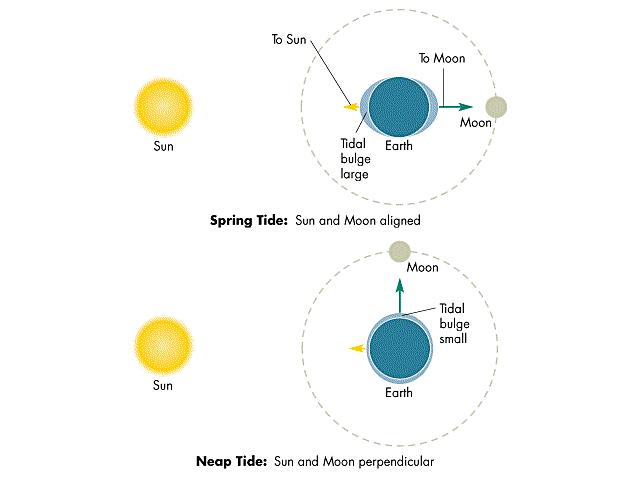
Tides:

* The moon has a larger impact because it is much closer than the sun is, despite how much bigger the sun is

Frequencies of Tides:

Earth’s Rotation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Lunar Day: 24 hours 50 mins

 Therefore: A point on Earth will experience two high tides and two low tides every lunar day (24 hours 50 mins)

Spring Tides:

Neap Tides: