

# Chapter Twenty: The Sun-Earth-Moon System

## Lesson 2: Earth's Moon

Earth's Moon does not emit light at all...we see the Moon because light from the Sun reflects off the Moon's surface.

- 1.2 % mass of Earth
- 27% Earth's diameter
- Rotation is 27.3 days
- Revolution is 27.3 days

Moon's formation is based off the giant impact hypothesis:

- An object the size of Mars collided with Earth.
- The impact ejected vaporized rock that formed a ring around Earth.
- The material in the ring cooled and clumped together...forming the Moon

Surface of the Moon:

- Craters: formed when objects from space crashed into the Moon.
  - Rays extend outward from some craters and are lighter in color
  - The Moon has no atmosphere or plate tectonics (like we do) so nothing has changed the surface of the Moon. (Our surface has changed because of plate tectonic activity and erosion from the weather.)
- **Maria:** the large, dark, flat areas on the Moon
  - It formed when lava from inside the Moon flowed upward and solidified on the surface. When it solidified, it was dark and flat.
- Highlands: the oldest and most highly-cratered region on the Moon

Because the Moon's rotation and revolution are the same, we always see the same side of the Moon.

- The side that we see is called the near side of the Moon.
- The side that we do not see is called the far side of the Moon.

**Phase:** the portion of the Moon or planet reflecting light as seen from Earth

- The sequence of phases is the lunar cycle.
  - One lunar cycle takes 29.5 days (about 4 weeks) to complete
- **Waxing phase:** more of the Moon's near side is lit each night.
- **Waning phase:** less of the Moon's near side is lit each night.

- 4 weeks of the Moon
  - Week 1 – First Quarter
    - Starting to see more of the Moon's near side
    - Western edge of the Moon is lit
  - Week 2 – Full Moon
    - We see the Full Moon at night...the entire Moon is reflecting the Sun's light.
  - Week 3 – Third Quarter (Last Quarter)
    - Starting to see less of the Moon's near side
    - Eastern edge of the Moon is lit
  - Week 4 – New Moon
    - The entire near side is completely dark.
    - We see the New Moon during the day.