

I. Gravity

- A. attractive force of any mass--field force (attracts from distance)
- B. factors affecting strength
 1. more mass stronger gravity
 2. closer to mass, stronger gravity

II. Objects in space

A. star:

1. giant ball of gas
2. gravity compresses to sphere
3. nuclear reactions in center create heat
4. heat energy changes to light energy

B. planet

1. orbits star in nearly spherical path
2. massive enough for gravity to force it into a spherical shape.
3. its gravity clears away other objects of similar mass near its orbit

C. moon

1. orbits planet
2. more than 200 known in solar system

D. comet

1. "dirty snowball"
2. orbits star in very elongated path
3. 3,697 known in solar system

E. asteroid

1. orbit star
2. mostly irregularly shaped
3. over 1,000,000 in solar system (mostly between Mars and Jupiter)

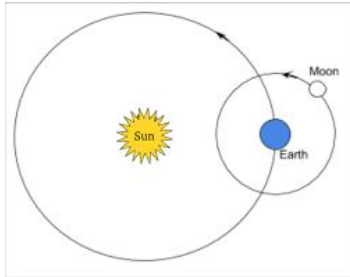
F. meteoroid

1. small asteroid
2. meteor: meteoroid that enters Earth's atmosphere
3. meteorite: meteor that reaches Earth's surface

III. Earth-Sun-Moon System

A. Positions and movements relative to each other

1. Sun center of solar system
2. Earth orbits sun (year)
3. Moon orbits Earth (approximately a month)



B. Lunar phases

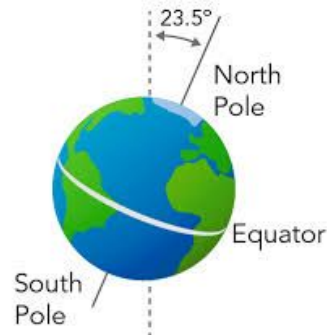
1. full moon: sun--earth--moon
2. first quarter (half moon): sun, earth, moon at right angles (moon moving to full moon position)
3. new moon: sun--moon--earth
4. last quarter (half moon): sun, earth, moon at right angles (moon moving to full new position)



III. Earth-Sun-Moon System continued

C. Seasons

1. Earth's axis tilted 23.5 degrees.



2. sun's rays hit southern hemisphere more directly in "our" winter
3. sun's rays hit northern hemisphere more directly in "our" winter
4. Earth actually closer to the sun in "our" winter and farther in summer

D. Eclipses

1. Solar
 - a. happens only during **some** new moons
 - b. moon's orbit tilted about 5 degrees relative to earth's so moon's shadow usually above or below Earth
2. Lunar
 - a. happens only during **some** full moons