

Name: _____

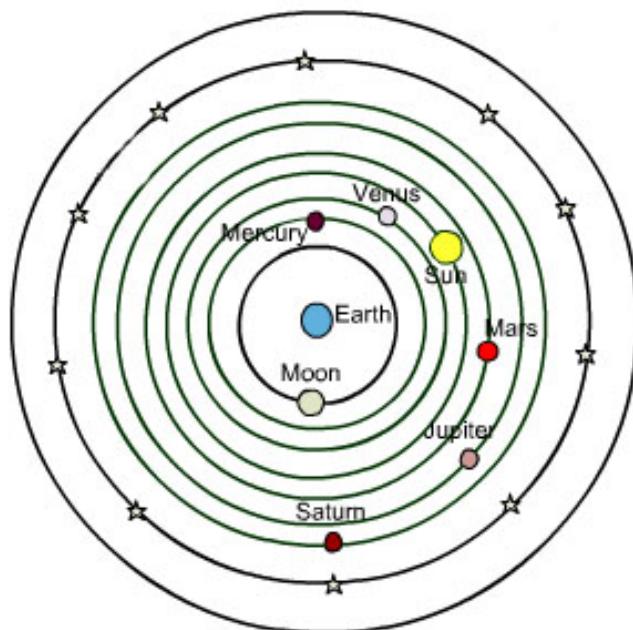
Date: _____ Period: _____

Class Notes: Astronomy

I. Apparent Motion

- Geocentric Universe - _____

 - Starts all rotate around the Earth on a single sphere at _____ °/hour
 - Planets travel on smaller spheres around their own large sphere in _____



- Problems with the Geocentric Model:
 - Locations of _____ could not accurately be predicted
 - Changes in the apparent diameter of the _____ and _____ could not be explained

Class Notes: Astronomy

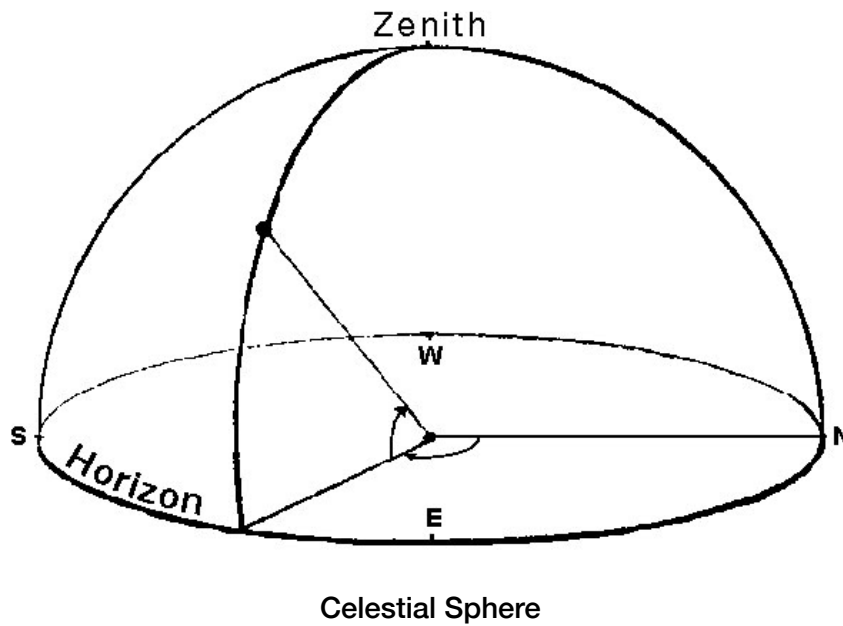
- Celestial Object - _____

- Apparent Motion - _____

- Celestial Sphere - _____

- Horizon - _____

- Zenith - _____



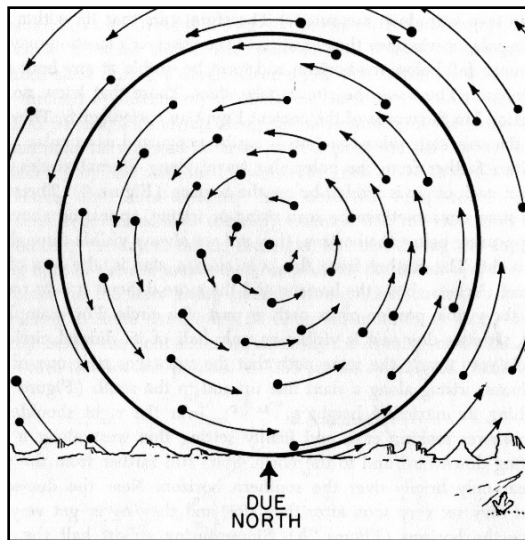
- All objects (except Polaris) appear to move across the celestial sphere from _____
to _____ at 15 °/hour or 360 °/24 hour

Class Notes: Astronomy

- Star Trails - _____

- Circumpolar Stars - _____

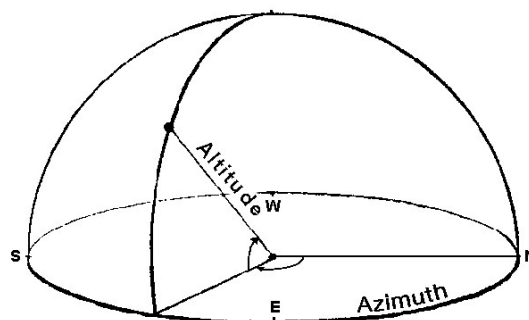
- Polar Stars - _____



Locating positions on the celestial sphere uses angular coordinates:

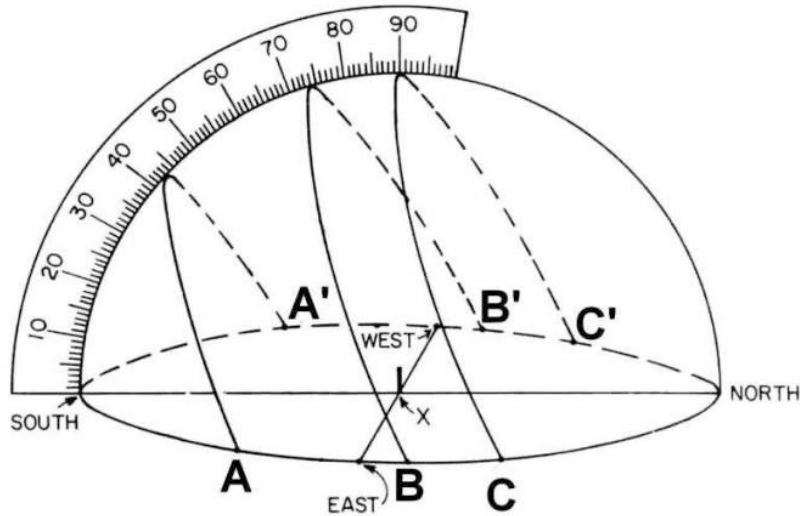
- Altitude - _____

- Azimuth - _____



Class Notes: Astronomy

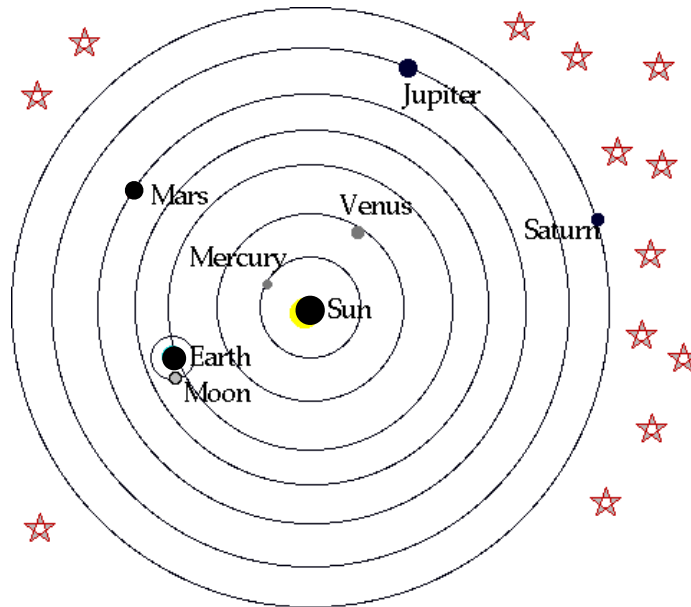
- The Sun's path changed both its position and length with the season
 - The _____ the Sun's path the _____ amount of daylight hours an area receives
 - The _____ the Sun's path the _____ amount of daylight hours an area receives



Class Notes: Astronomy

II. Actual Motions

- Heliocentric Model - _____
-



- Rotation - _____
-

- Period of Rotation - _____
-

- Example: Earth rotates 360° in _____ hours

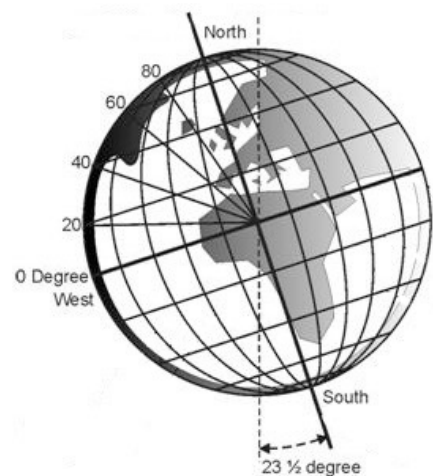
- Earth's axis of rotation is _____

- Evidence of Rotation:

- Foucault Pendulum - large pendulum that allowed to swing freely changes its path due to Earth's rotation

- Coriolis Effect - the tendency of all particles on Earth surface to be deflected from a straight line

- N. Hemisphere to the right
- S. Hemisphere to the left



Class Notes: Astronomy

- Revolution - _____

- Period of Revolution - _____

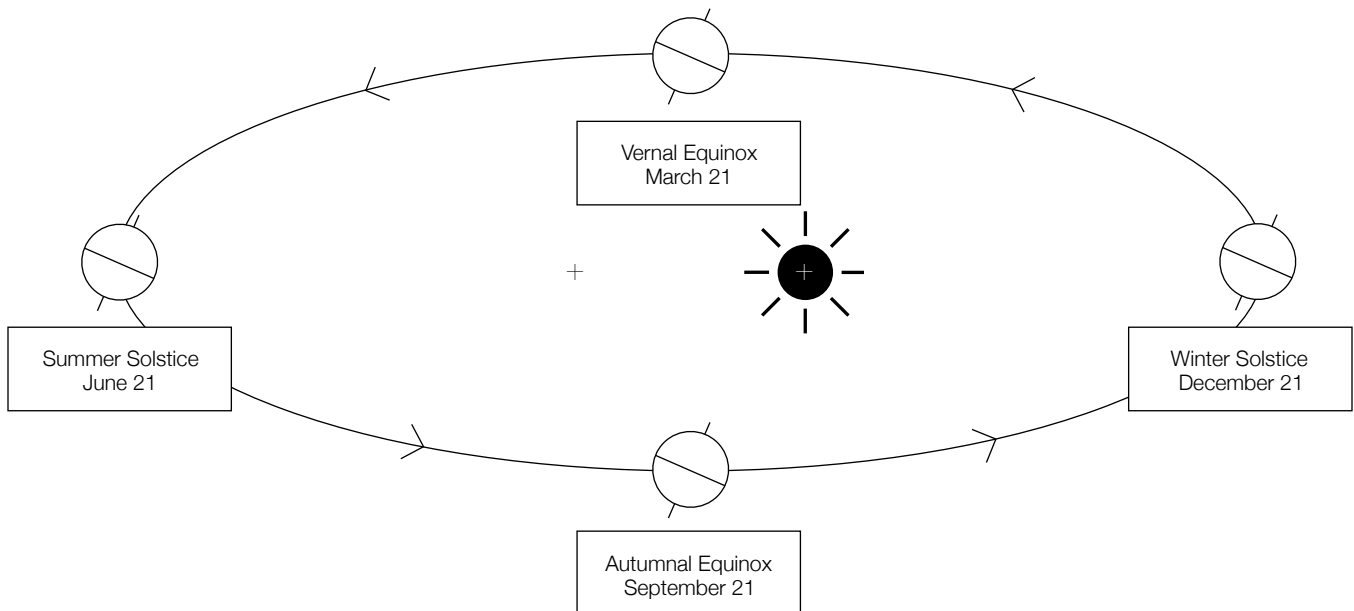
 - Example: Earth orbits the Sun in _____ days
- Evidence of Revolution:
 - Parallelism of Earth's Axis - _____

- Winter Solstice - _____

- Summer Solstice - _____

- Vernal Equinox - _____

- Autumnal Equinox - _____



Class Notes: Astronomy

- Ellipse - _____

- Eccentricity - _____

 - Eccentricity of a perfect circle is _____
 - Eccentricity of a flat line is _____
- Foci - _____

- Major Axis - _____

- Minor Axis - _____

III. The Solar System

- Solar System - _____

 - The Sun accounts for _____ of the mass in the solar system
- Terrestrial Planets - _____

 - Examples: Mercury, Venus, Earth, Mars
- Jovian Planets - _____

 - Examples: Jupiter, Saturn, Uranus, Neptune
- Asteroids - _____

 - A large percent of the thousands of known asteroids are between Mars and Jupiter

Class Notes: Astronomy

- Moon - _____

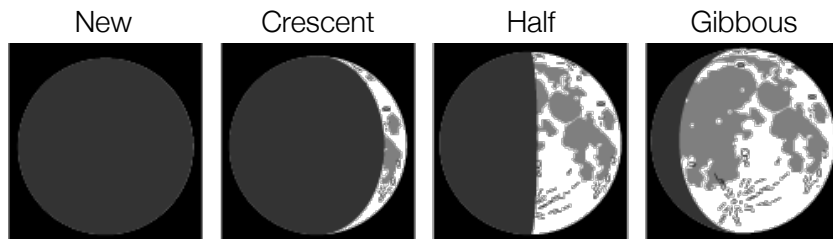
- There are _____ known moons in our solar system
- Earth's Moon
 - After an impact with a large asteroid a portion of the Earth created the moon
 - The Moon orbits the Earth in an _____ orbit once every _____ days while it appears to change shape
 - Crescent Moon - _____

 - Full Moon - _____

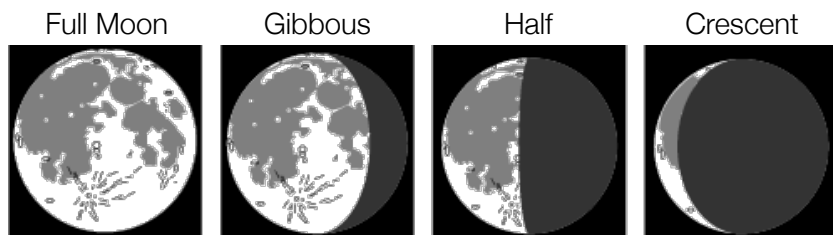
 - Gibbous Moon - _____

 - New Moon - _____

- Waxing Moon - _____



- Waning Moon - _____



Class Notes: Astronomy

- Comet - _____

 - As the solids melt they leave a trail behind known as a comets tail
- Meteoroid - _____

- Meteorites - _____

- Evolution
 - 5 billion years ago a large dust cloud left over from an exploded star started to condense
 - Most of the mass was concentrated to the center and formed the _____
 - The other concentration formed the _____
 - When the Sun became too massive it ignited under its own mass in a violent explosion
 - The explosion blew most of the gases off the inner planets and pushed most of the debris between _____ and _____

Celestial Object	Mean Distance from Sun (million km)	Period of Revolution (d=days) (y=years)	Period of Rotation at Equator	Eccentricity of Orbit	Equatorial Diameter (km)	Mass (Earth = 1)	Density (g/cm ³)
SUN	—	—	27 d	—	1,392,000	333,000.00	1.4
MERCURY	57.9	88 d	59 d	0.206	4,879	0.06	5.4
VENUS	108.2	224.7 d	243 d	0.007	12,104	0.82	5.2
EARTH	149.6	365.26 d	23 h 56 min 4 s	0.017	12,756	1.00	5.5
MARS	227.9	687 d	24 h 37 min 23 s	0.093	6,794	0.11	3.9
JUPITER	778.4	11.9 y	9 h 50 min 30 s	0.048	142,984	317.83	1.3
SATURN	1,426.7	29.5 y	10 h 14 min	0.054	120,536	95.16	0.7
URANUS	2,871.0	84.0 y	17 h 14 min	0.047	51,118	14.54	1.3
NEPTUNE	4,498.3	164.8 y	16 h	0.009	49,528	17.15	1.8
EARTH'S MOON	149.6 (0.386 from Earth)	27.3 d	27.3 d	0.055	3,476	0.01	3.3

Class Notes: Astronomy

IV. Galaxies and Stars

- Galaxy - _____

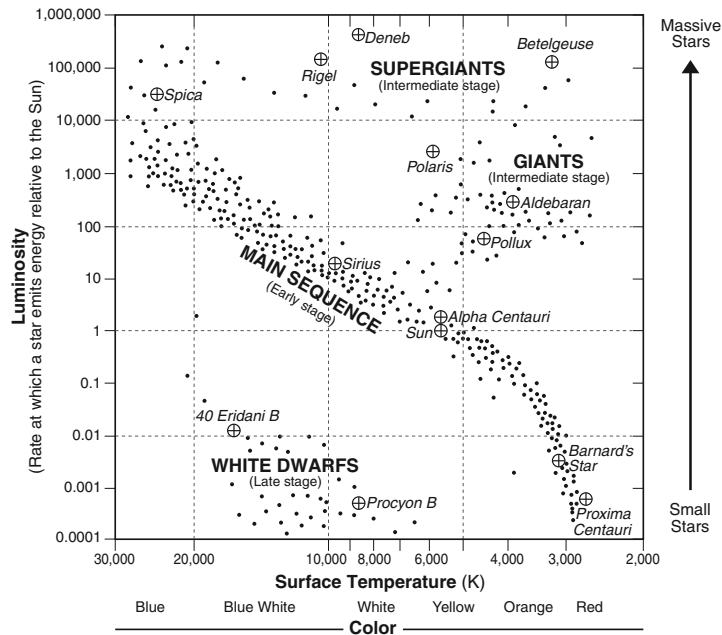
 - Average galaxies have around _____ billion stars
- Galaxies have been classified by the following shapes:
 - _____, _____, _____
- Milky Way Galaxy - _____

- Star - _____

 - Make up the majority of known matter in the galaxy
- Nuclear Fusion - _____

 - The Sun converts hydrogen nuclei into helium nuclei
- Luminosity - _____

 - Luminosity and temp. are used in classifying the different types of stars on a H-R diagram



Class Notes: Astronomy

- Stars have a life cycle and undergo stellar evolution
 - Stars originate from a cloud of _____ and _____
 - Gravity causes them to clump together and form larger balls of dust and gases
 - When gravitational contraction creates enough heat they ignite and start nuclear fusion
- Main Sequence Star - _____

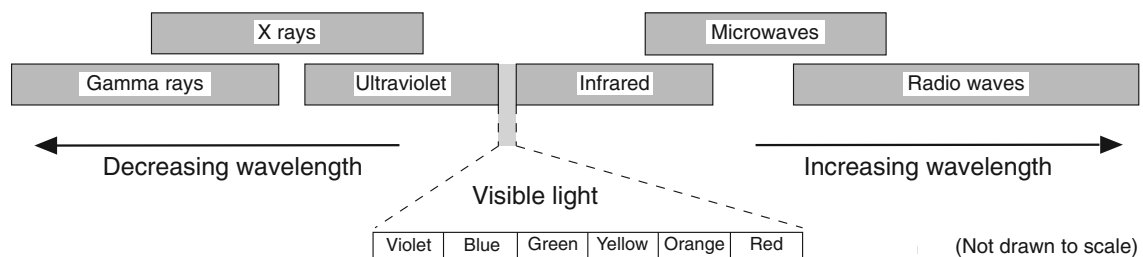
 - _____ of the known stars spend their life on the main sequence
 - The _____ is apart of the main sequence
- Red Giant Stars - a luminous easily seen star star that is in a late phase of stellar evolution
- Super Giant Stars - star with an extremely high temperatures in the late phase of stellar evolution
- White Dwarf Stars - Earth sized star with a low luminosity and a hot surface

V. The Universe

- Universe - _____

 - Scientists all agree that the universe is extremely vast and between 10-17 billion years ago came to creation with the big bang
- Big Bang - _____

- Electromagnetic Energy - _____



Class Notes: Astronomy

- Evidence of the Big Bang

- Background Radiation - _____

- Scientists have found evidence of long wave radiation (microwaves) that come from all directions in the universe

- Doppler Effect - _____

- Each element gives off an electromagnetic spectral line and when scientists study energy coming off a celestial object they can infer which elements are in these objects as well as its direction of movement

- Positions of colored lines shifted as they studies stars and galaxies

- Blue Shift - _____

- Red Shift - _____

