

Astronomy Review

farthest = max Pe
aphelion
min. apparent diam.
slowest = min. Ke
weakest gravity



closest = min Pe
perihelion
max apparent diameter
fastest = max Ke
strongest gravity

You must be able to look at a diagram of a body in orbit around a star or a planet and tell, based upon the position of that body (close or far), its

- 1) Pe (stored energy)
- 2) Ke (velocity)
- 3) Gravitational attraction
- 4) Apparent diameter (of the sun)
- 5) Whether it's at perihelion or aphelion (perigee or apogee)

More facts you **MUST** know:

- 1) How to find the eccentricity of an ellipse if you are given d and l or, if you are just given a picture you must be able to measure d and l and calculate eccentricity.
- 2) Know and understand Kepler's Laws:
 - A) Equal swept area in equal time.
 - B) The closer a planet is to the sun, the faster it's speed of revolution and the shorter it's period of revolution (year).
- 3) The earth rotates on its axis at $15^\circ/\text{hr}$ and revolves around the sun at $1^\circ/\text{day}$.
(Revolution = year, Rotation = day)
- 4) Evidence that the earth (or any object) rotates.
 - A) The motion of the Foucault pendulum (it seems to change direction but the earth is really rotating beneath it).
 - B) The Coriolis effect: The deflection (change in direction) of winds and currents due to the rotation of the earth.
 - C) Best evidence: observations of features on a planet moving.
- 5) Luminosity is brightness of a star INDEPENDENT of its distance from the observer.
- 6) The temperature of a star determines its color.
- 7) Most stars go through a 'life cycle' on the 'main sequence'.
- 8) Know the age of the universe (12-14 billion years) and the age of earth and the rest of the solar system (4.5 billion years).
- 9) Understand red and blue shift and the Doppler effect (see powerpoint on website).
Red shift (lower frequencies): object moving **away**.
Blue shift (higher frequencies) object moving **closer**.
- 10) Geocentric and Heliocentric models of the solar system.

Emphasis on reference table page 15 (both charts) and EM spectrum chart on page 14.

Vocab: Galaxy, Nebula, Universe, Solar System, Light year, Big bang, Fusion, Ellipse, Eccentricity, Focus, Length of Major Axis, Comet, Meteor, Asteroid, Orbit, Geocentric, Heliocentric, Retrograde Motion, Planet, Star, Nova, Revolution, Rotation, Coriolis effect, Foucault pendulum, Apparent diameter, Apparent motion, Axis of rotation, Potential energy, Kinetic energy, Perihelion, Perigee, Aphelion, Apogee, Gravity, Luminosity, Wave length, Frequency, Electromagnetic spectrum,