Measuring Distances in Space
**Astronomical Unit (AU)**

* Measuring distances in KM in space is not practical, so the astronomical unit (AU) was created.

* 1 AU = the average distance between the Sun and the Earth, approximately 150 million km.

* For example mercury is 0.39 AU from the Sun while Mars is 1.52 AU from the Sun
Outside of our solar system, AUs become impractical to use so the Light Year (ly) was developed.

1 ly = the distance a beam of light can travel in one year. It is the equivalent of 63,000 AU or 9,000 billion KM.
Models of Planetary Motion
Geocentric Model

* More than 2000 years ago thought that the Earth was the centre of the universe.
Heliocentric model is a Sun-centered model that was revived by Copernicus.
Heliocentric Model

* Two key pieces of support

  * i) Orbital Radius: each planet orbits the sun at a different orbital radius.
  
  * The shorter the orbital radius, the faster a planet moves in its orbit.
Heliocentric Model

Two key pieces of support

i) Elliptical Orbits

Kepler noted that orbits are ellipses not circles. This observation made it easier to predict planetary motions.
* Complete page 350 # 1-6