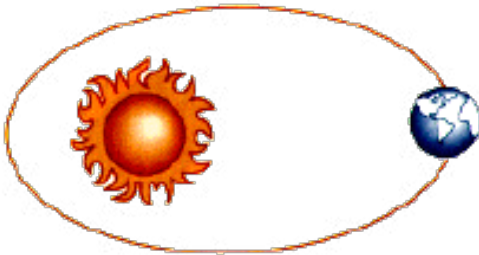




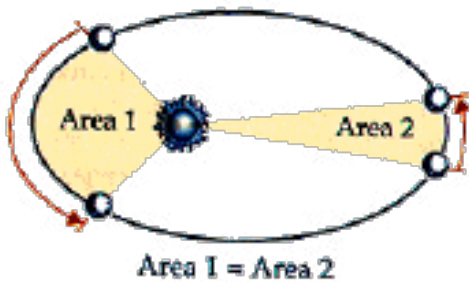
## Kepler's Laws

### Kepler's First Law



The orbits of the planets are ellipses with the Sun at one focus.

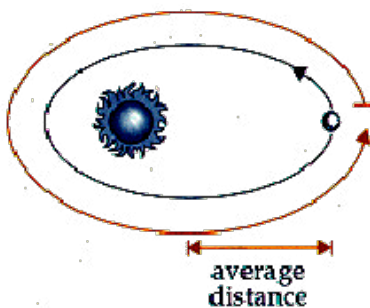
### Kepler's Second Law



The line joining a planet to the Sun sweeps out equal area in equal times.

*This means that the closer a planet is to the Sun, the faster it will travel.*

### Kepler's Third Law



The square of an orbital period is directly proportional to the cube of the average distance between the Sun and a planet:

$$T = \text{constant} \cdot a^{\frac{3}{2}}$$

*This means that the farther a planet is from the Sun, the longer it takes to go around.*

*If you know the distance of a planet from the Sun, you know how long that planet takes to go around.*