Measuring Distances in the Solar System

- The **astronomical unit** (AU) – is the average distance between the Sun and the Earth – approx. 150,000,000 km
- Jupiter is 5.2 AU from the Sun (780,000,000 km)

Planets

- After the Sun, the planets are the next largest objects in the Solar System
- Mercury, Venus, Earth and Mars are the small rocky planets (inner planets)
- The asteroid belt separates the inner planets from the outer planets
- After the asteroid belt there are the gas giants – Jupiter, Saturn, Uranus and Neptune

Dwarf Planets

- Just like planets, dwarf planets:
  - Orbit around a star
  - Have enough mass that they are pulled into a stable sphere shape by gravity
- But, unlike planets, dwarf planets:
  - Do not dominate their orbit (objects that are larger cross through their orbit)
- Pluto
  - Discovered in 1930 but is no longer a planet as of 2006
  - This is because its orbit overlapped Neptune and so it did not “dominate” its orbit
- Astronomers estimate that there are up to 2000 dwarf planets

Smaller Members of the Solar System

- Asteroid belt
  - Asteroids – composed of rock and metal. They orbit the sun and can have a diameter of up to 950 km
  - The asteroid belt contains the majority of the asteroids and lies between Mars and Jupiter
- Meteoroids
  - Composed of rock and metal but smaller than an asteroid. Most are the size of dust but some are as large as a car.
  - When they are pulled into the Earth’s atmosphere by gravity the friction causes them to burn up creating a bright streak of light across the sky
  - If they do not completely burn up, their remains left on Earth are called meteorites.
• Comets
  o Chunk of ice and dust that travels in a very long orbit around the sun
  o They range in size of 100m to 40km in diameter
  o Short period – take less than 200 years to orbit e.g. Halley’s Comet (75-76 years)
  o Long period – take more than 200 years e.g. Hale-Bopp (2380 years)
  o They have a gas tail pointing away from the Sun and a dust tail forms in the direction the comet came from

Homework: Read pg. 313 - 317, Pg. 317 #1,2,4