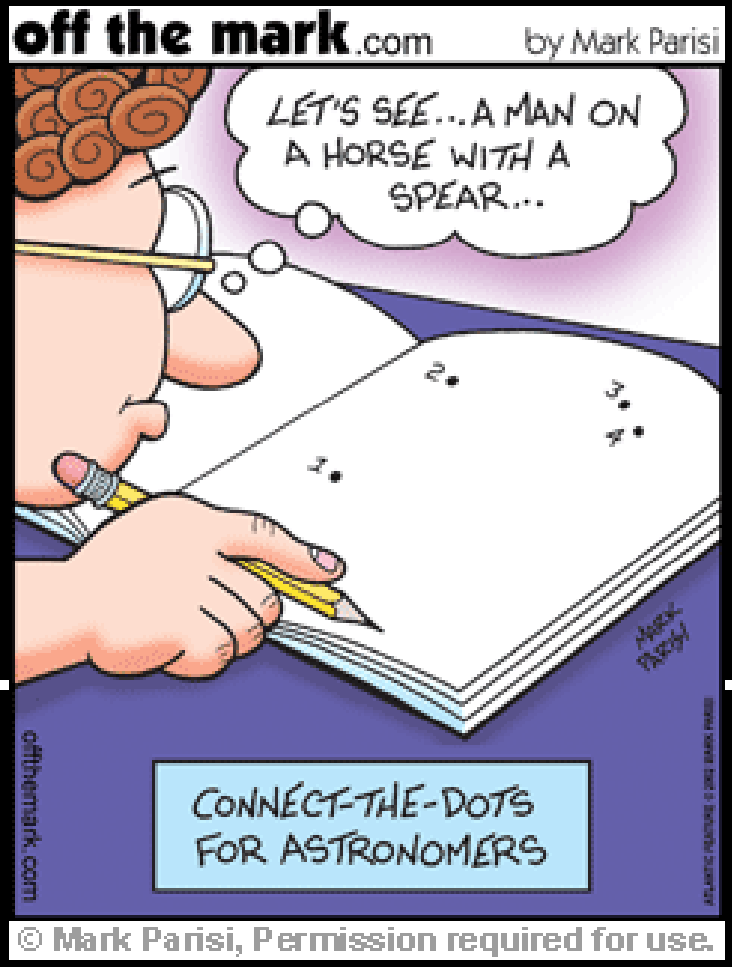
Exploring the Universe



Models of The Universe…

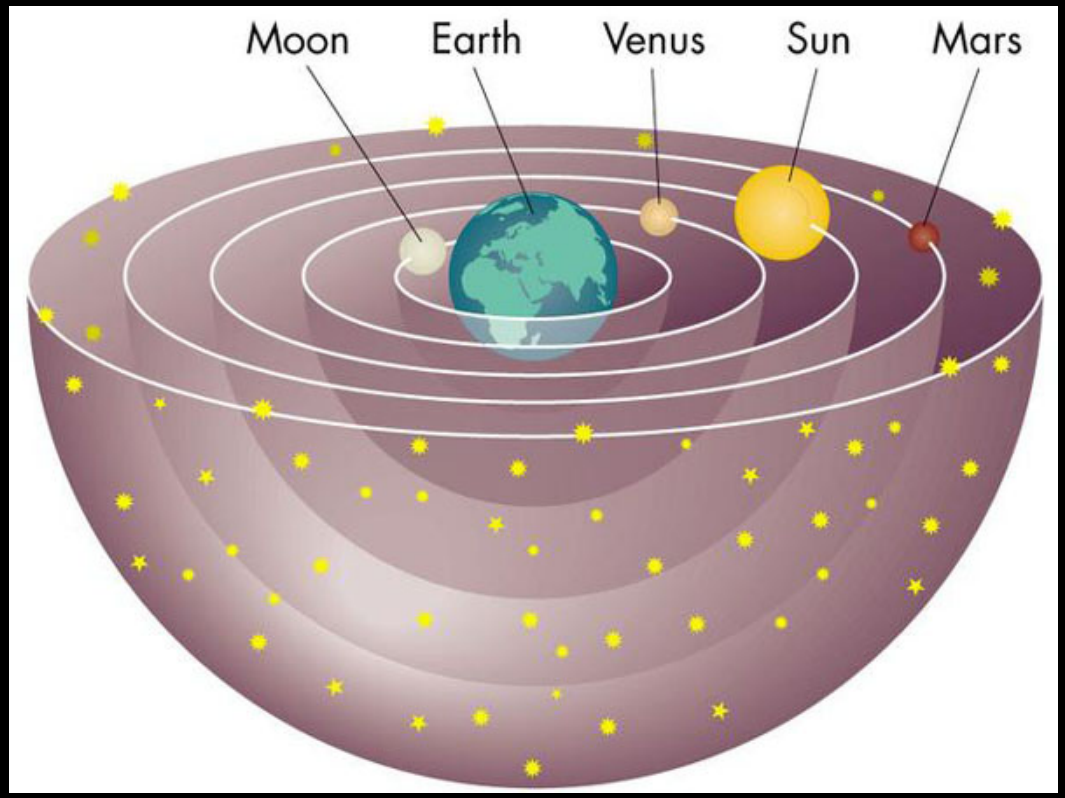
There are two major models that explains the motion of bodies found in our universe…

The GEOCENTRIC MODEL
→ "earth centred"

The HELIOCENTRIC MODEL
→ "sun centred"

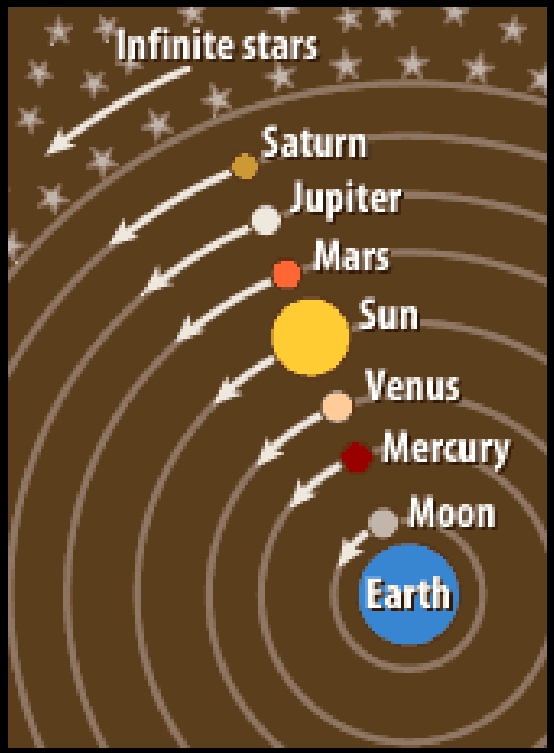
Geocentric Model…

- Attributed to the Greek philosophers Ptolemy and Aristotle
- They said that the following bodies orbited the earth:
  - The moon
  - The sun
  - Venus
  - Mars
  - Mercury
  - Jupiter
  - Saturn



Geocentric Model…

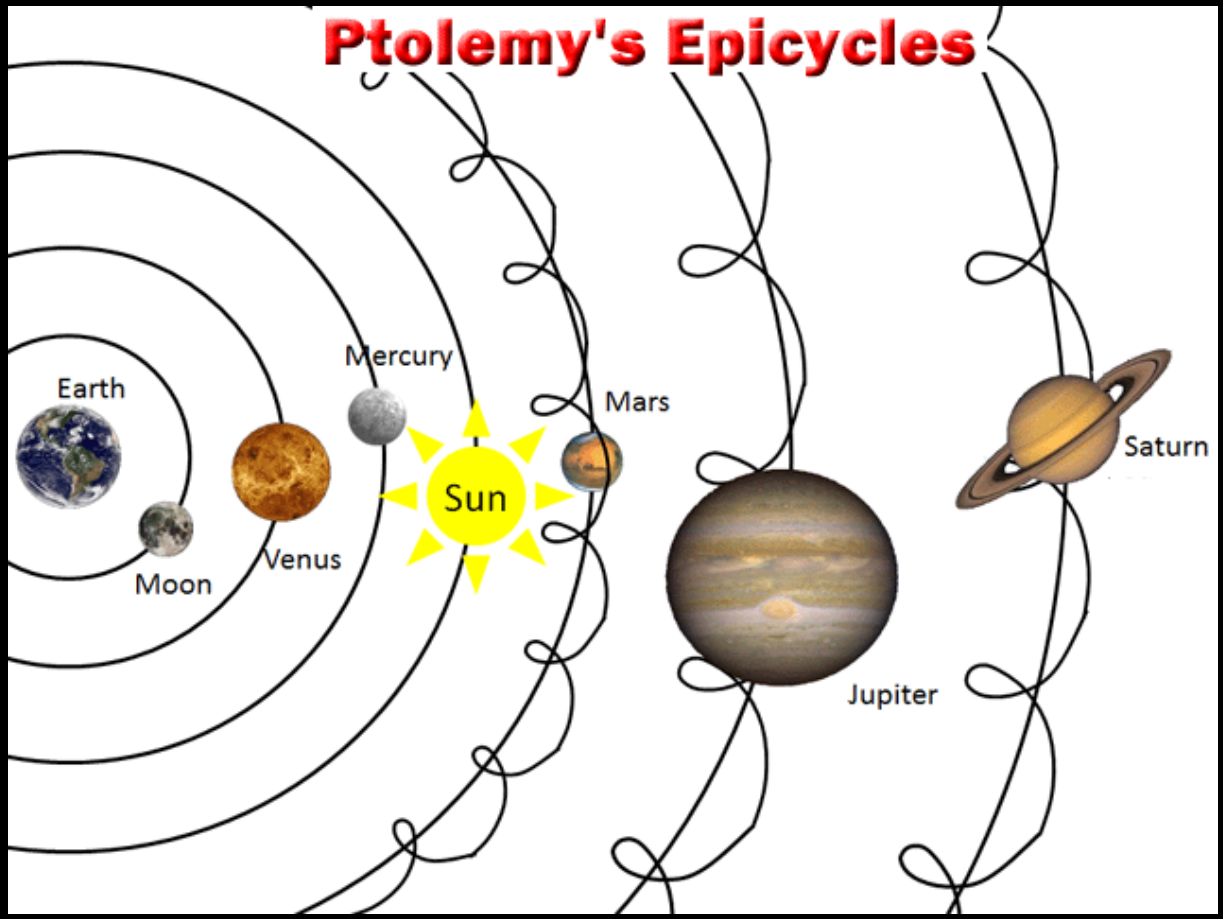
- They said that all the stars were a part of an outer sphere that formed the area outside of our part of the universe



- This model was able to account for the motion of all the bodies, except for why mars, jupiter and saturn, sometimes moved backwards!

Geocentric Model…

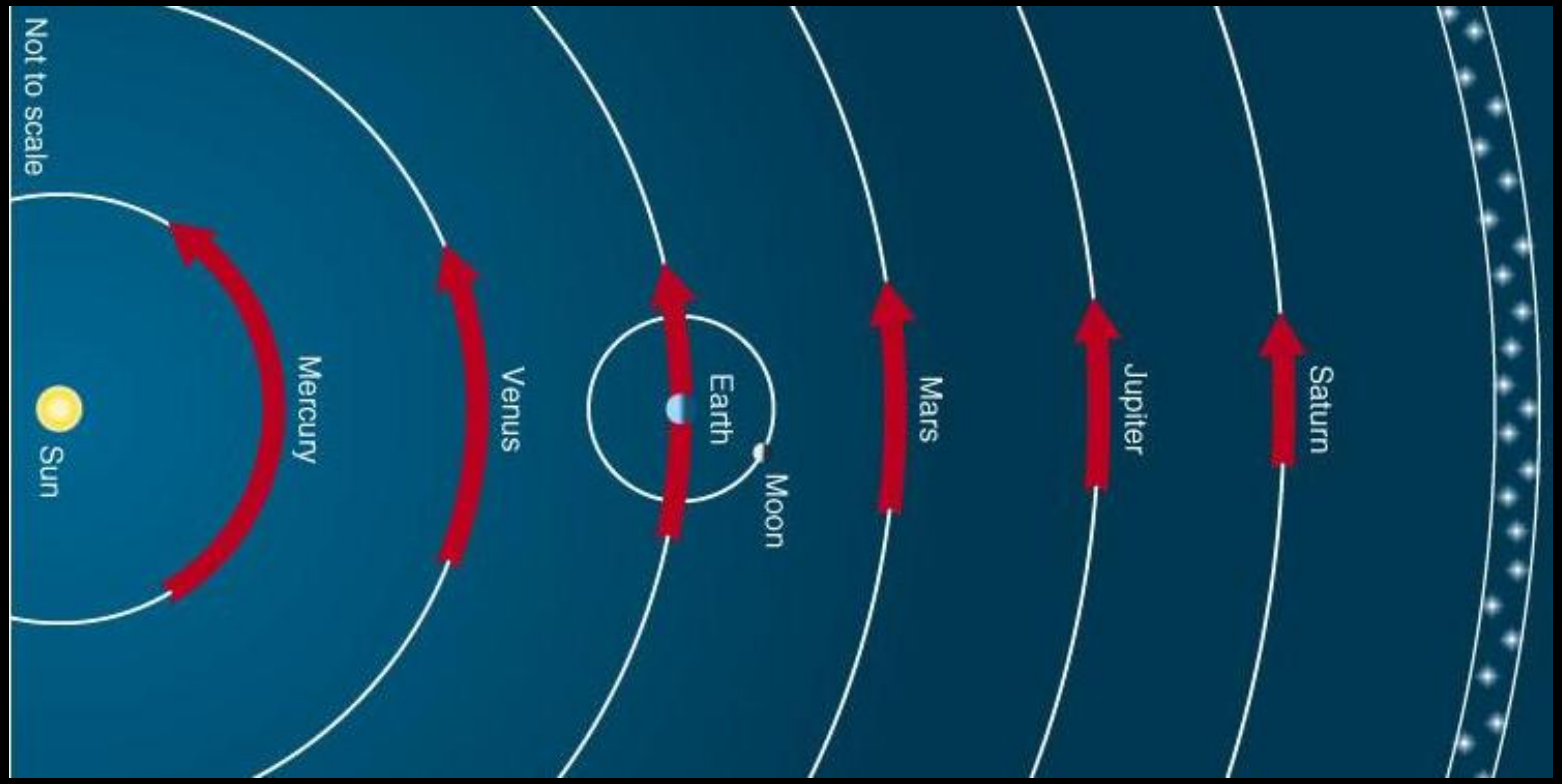
- To account for this "backward" motion, Ptolemy said that these planets had a special motion called **EPICYCLES**:



Heliocentric Model…

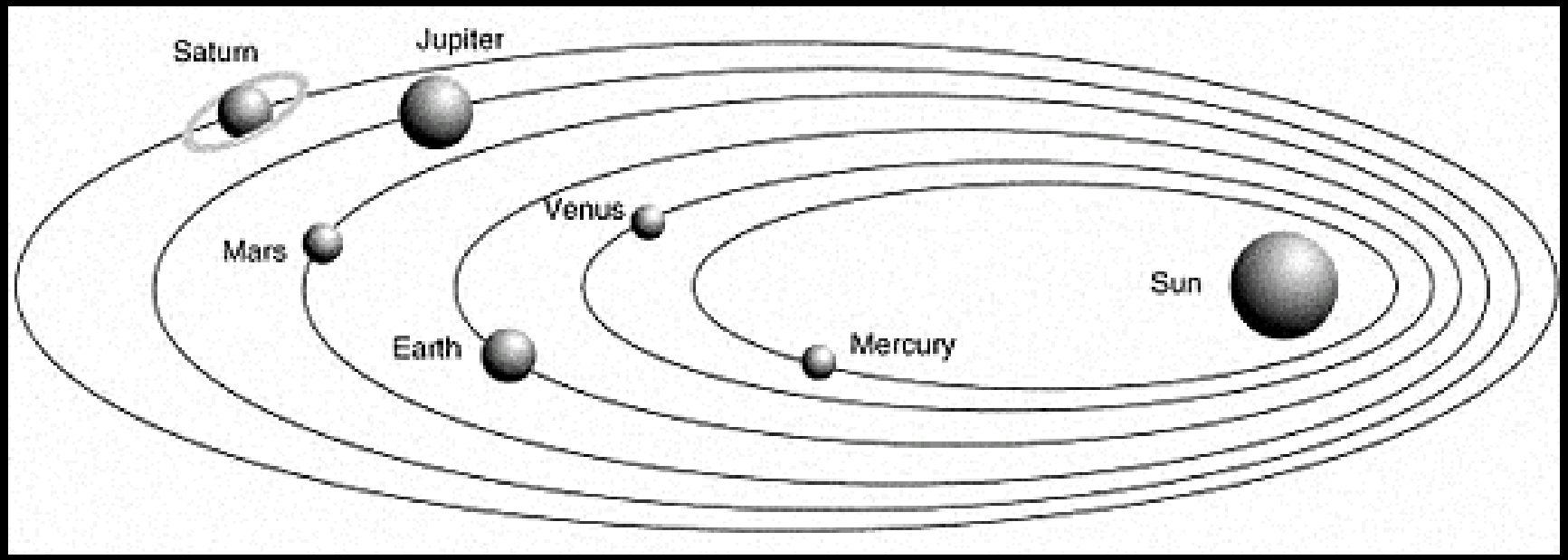
- Having difficulty with the "backwards" motion of certain planets, Nicholas Copernicus proposed a new model in the 1500's

- He said that the sun was fixed and that all bodies orbit the sun.



Heliocentric Model…

- Johannes Kepler (a German mathematician) made the model more accurate by suggesting the orbits were ellipses, and not circles



Space Vocabulary

Solar System:

- Consists of the Sun, and everything bound to it by gravity. This includes the 8 planets and their moons, the asteroids, the dwarf planets, all the Kuiper belt objects, the meteoroids, comets and interplanetary dust.

Galaxy:

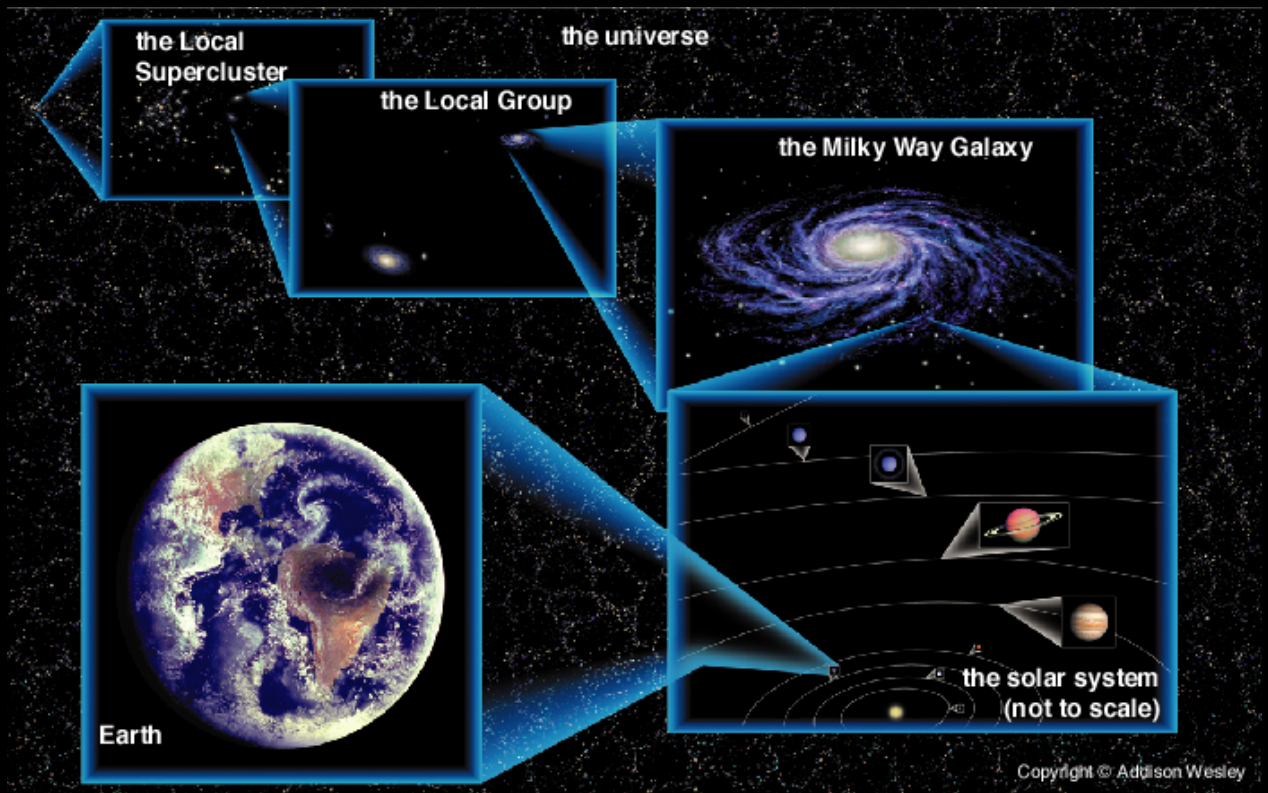
- large system of stars held together by mutual gravitation and isolated from similar systems by vast regions of space. The Milky Way measures about 100,000 light-years across, and is thought to contain 200 billion stars.

Universe:

- Contains all known or supposed objects and phenomena throughout space; the cosmos; macrocosm.

To sum it up…

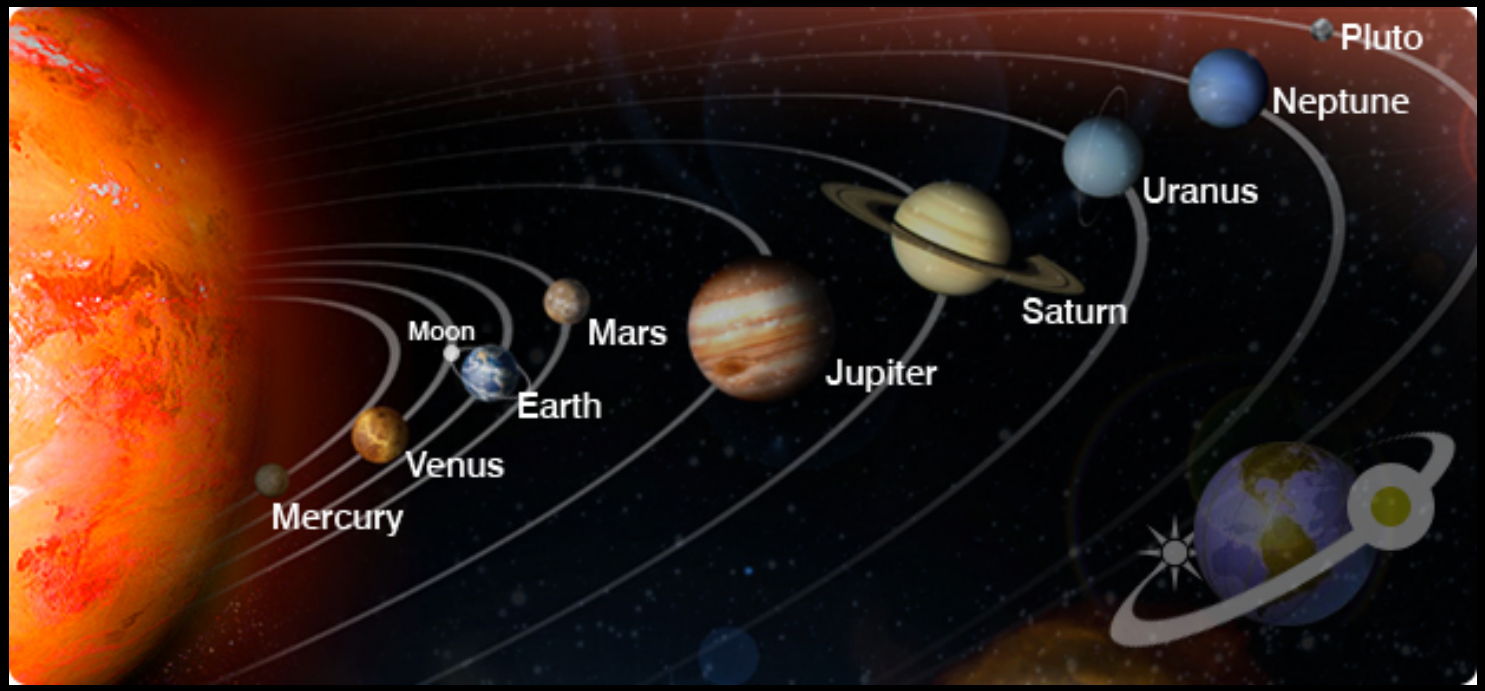
- We live on planet Earth which is part of our local Solar System.
- Our Solar System includes the Sun and everything that orbits the Sun.
- Our Sun, is just one Star in the Milky Way Galaxy.
- The Milky Way Galaxy is just one Galaxy in the Universe.



More space stuff…

Planets:

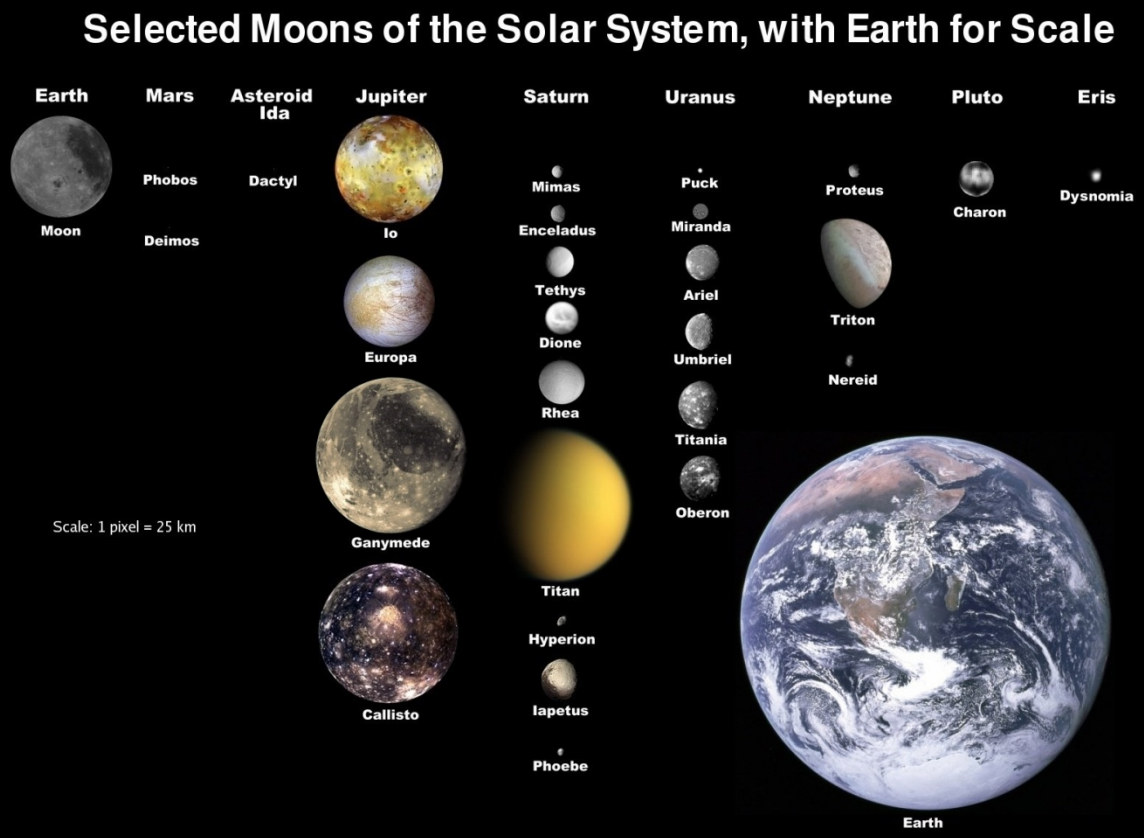
- Celestial bodies that orbit a star
- There are 8 planets in our solar system:
  → Mercury, venus, earth, mars, jupiter, saturn, uranus, neptune.
- Remember it by "my very excited mother just served us nachos"



More space stuff…

Moons:

- a celestial body that makes an orbit around a planet
- Also known as a "natural satellite"



More space stuff…

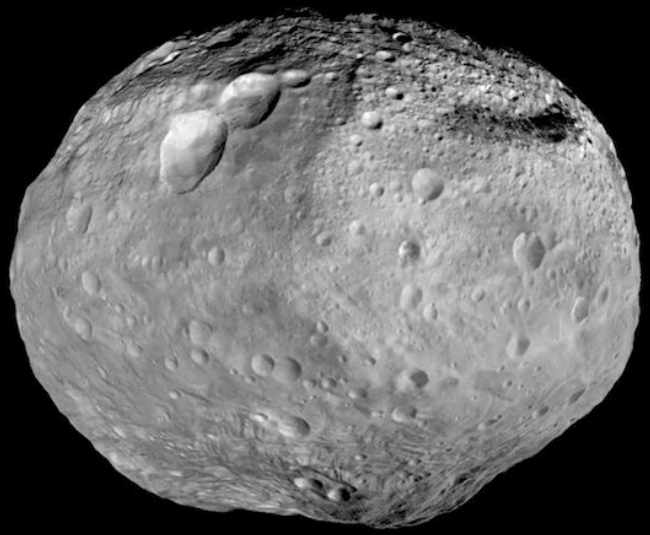
Comet:

- a celestial object consisting of a nucleus of ice and dust and, when near the sun, a "tail" of gas and dust particles pointing away from the sun.

More space stuff…

Asteroid:

- a small rocky body orbiting the sun. Large numbers of these, ranging in size from nearly 600 miles (1,000 km) across (Ceres) to dust particles, are found (as the *asteroid belt*) especially between the orbits of Mars and Jupiter,



More space stuff…

Nebula:

- a cloud of gas and dust in outer space that will often form into stars

The Orion nebula is the brightest diffuse nebula is the sky. This image shows clearly the 3-dimensional structure of this star formation region