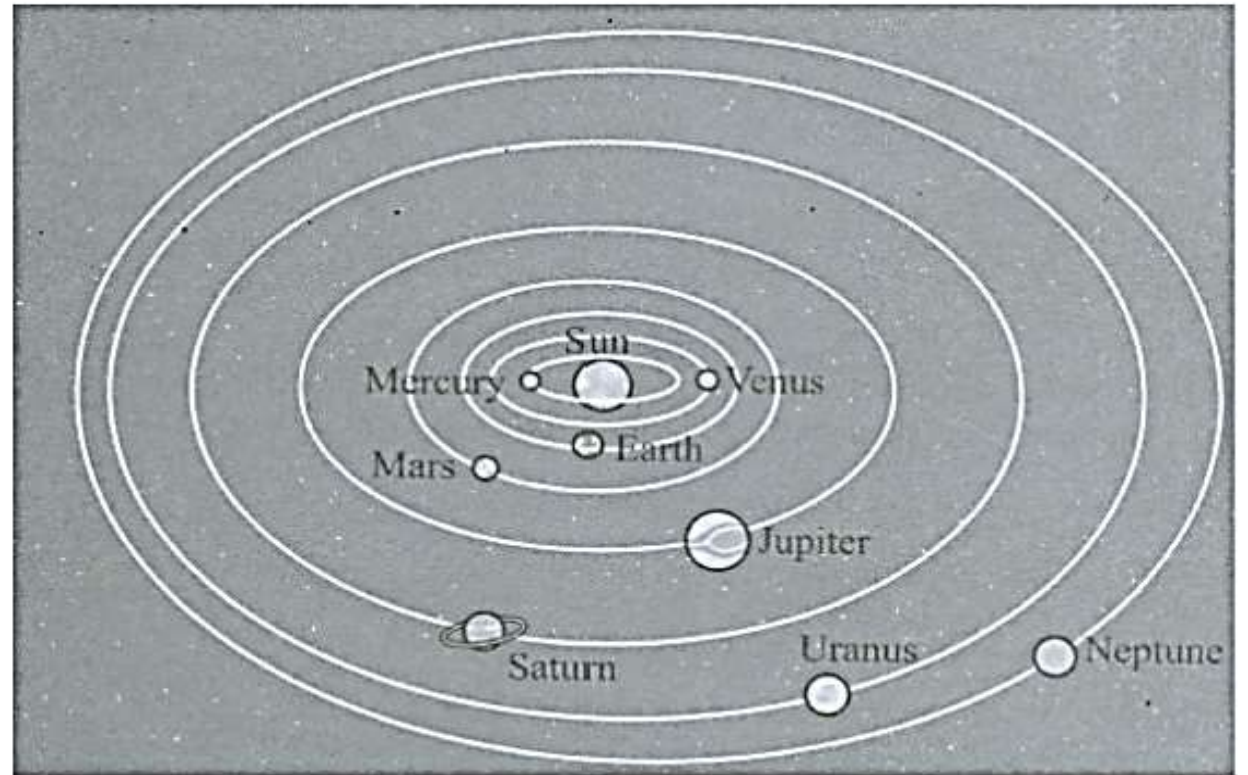


Do Now

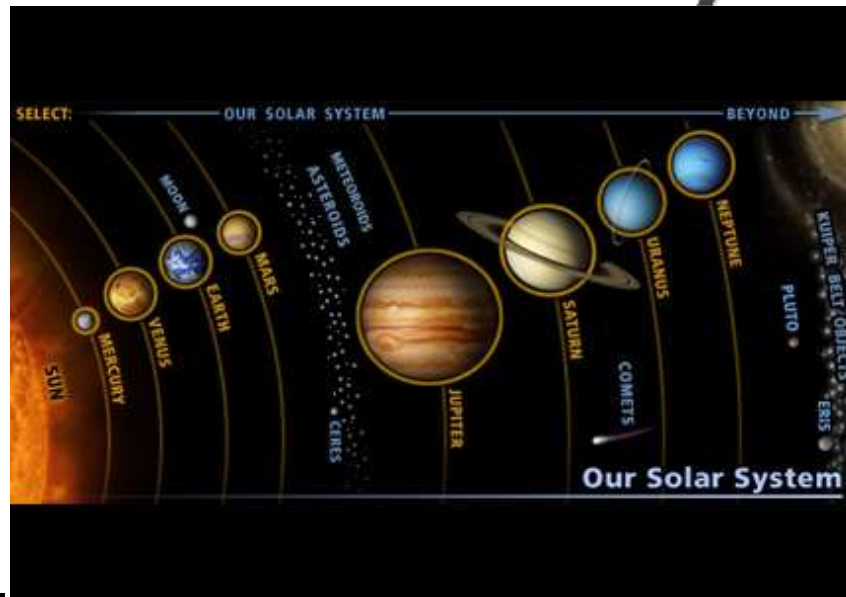
Review the diagram of the Solar System.



Based on this diagram, which statement can be concluded?

- A. A day on Earth is longer than a day on Mercury.
- B. A year on Venus is longer than a year on Saturn.
- C. The average temperature on Mars is colder than the average temperature on Venus.
- D. The average temperature on Jupiter is hotter than the average temperature on Earth.

Astronomical Bodies in The Solar System



Small Bodies in the Solar System

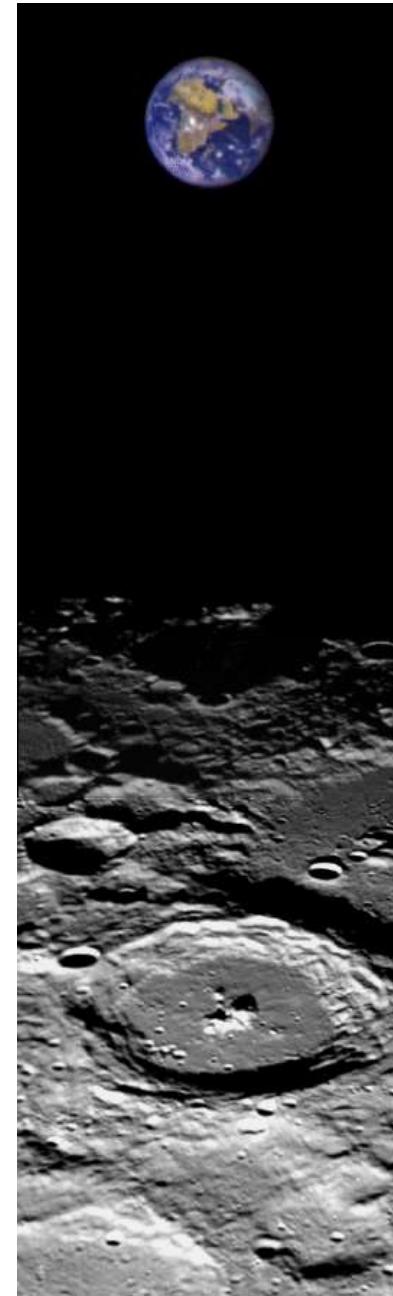
The Moon

A look at our
nearest
neighbor in
Space!



What is the Moon?

- ▶ The only moon of the planet Earth
- ▶ A natural satellite
- ▶ One of more than hundreds of moons in our Solar System

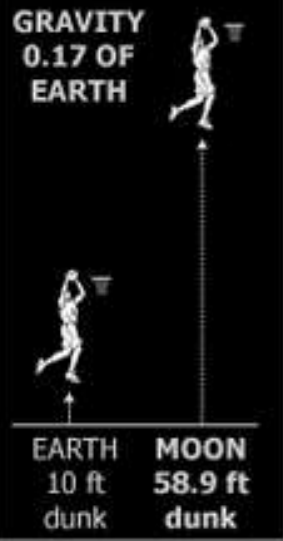
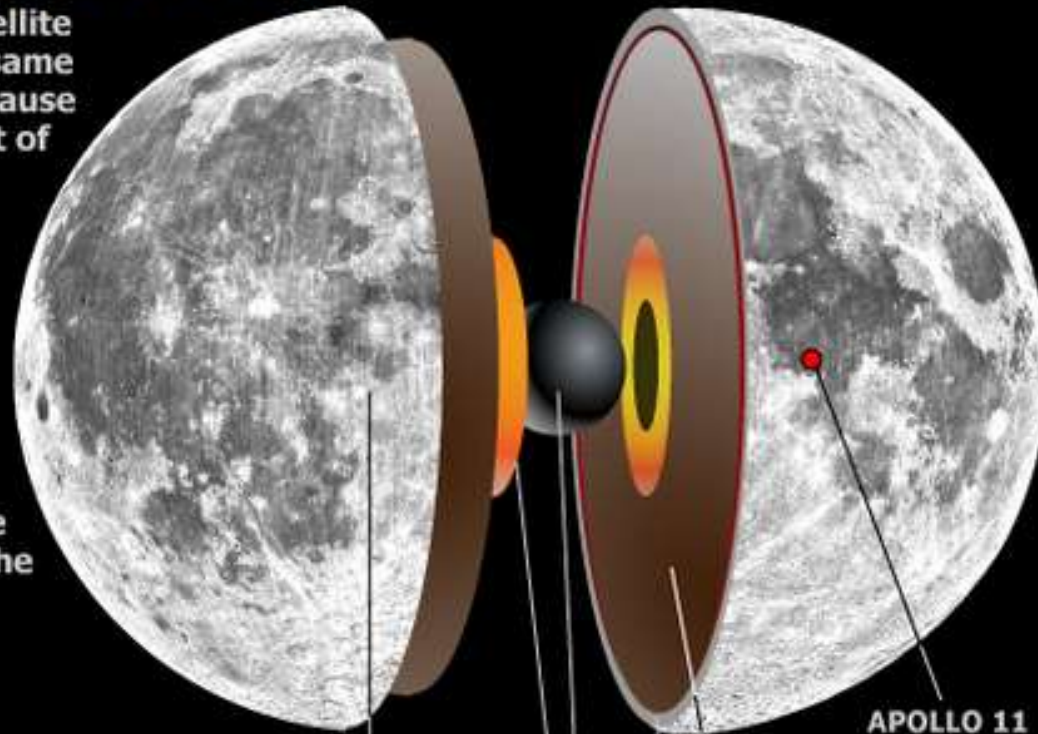


The Moon (Luna)



Inside Earth's MOON

Our large natural satellite always presents the same face to the Earth, because it completes one orbit of Earth in about the same span of time it takes to complete one rotation. The dark plains on the side facing Earth are volcanic features called seas, or "maria." The first human landing on the moon took place on the Sea of Tranquility.



SURFACE CONDITIONS
AIR PRESSURE: none
TEMPERATURE RANGE: from about -280°F (-173°C) at night to +260°F (+127°C) in the daytime at the equator



Astronaut James Irwin on the moon, Apollo 15, August 1971

PARTLY MELTED OUTER CORE
SOLID IRON CORE
CRUST
LITHOSPHERE

APOLLO 11 LANDING SITE



The moon is 2,159 mi (3,474 km) in diameter, about 1/4 that of Earth

The Moon's Surface



- ▶ Impact Craters!!
- ▶ No atmosphere
- ▶ No liquid water
- ▶ Extreme temperatures
 - Daytime =
130°C (265°F)
 - Nighttime =
-190°C (-310 °F)
- ▶ 1 / 6 Earth's gravity

Sketch



ASTEROIDS

...are nature's way of asking:



“How’s that space program coming along?”

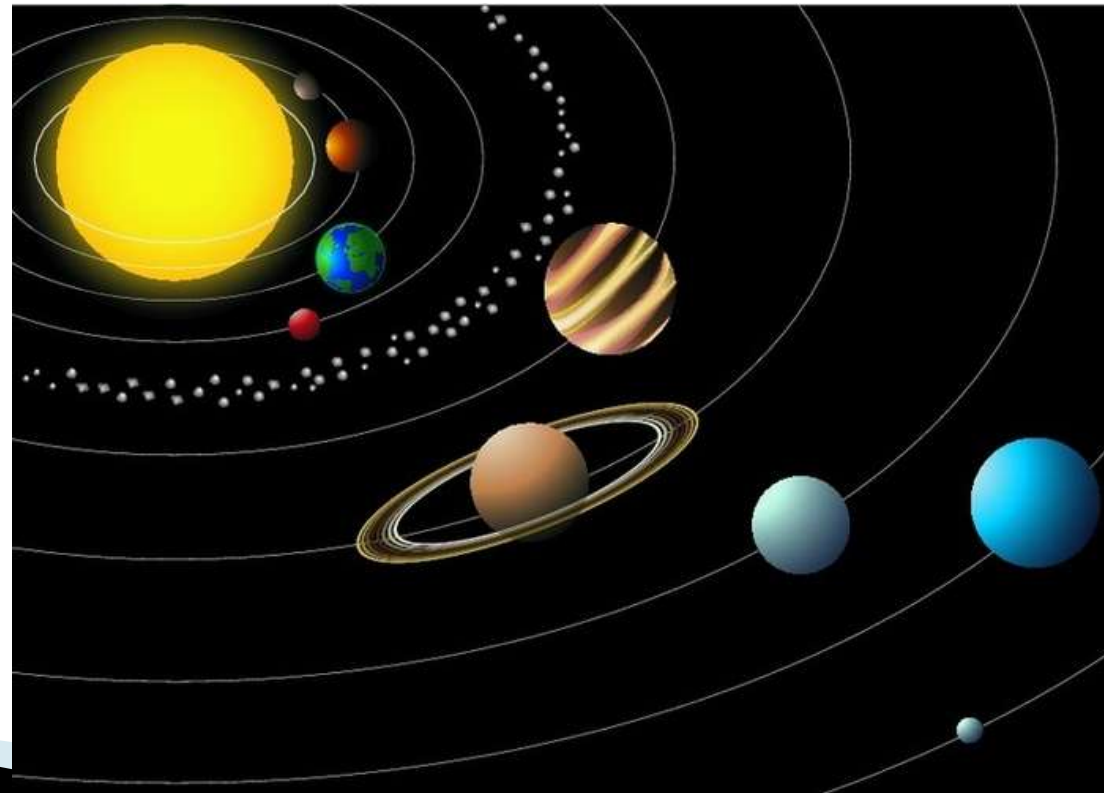
Asteroids

- ▶ Small rocky or metallic bodies that are caught in the Sun's gravity.
- ▶ A large asteroid belt divides the terrestrial planets from the Gas Giants.
- ▶ Have many impact craters on the surface.

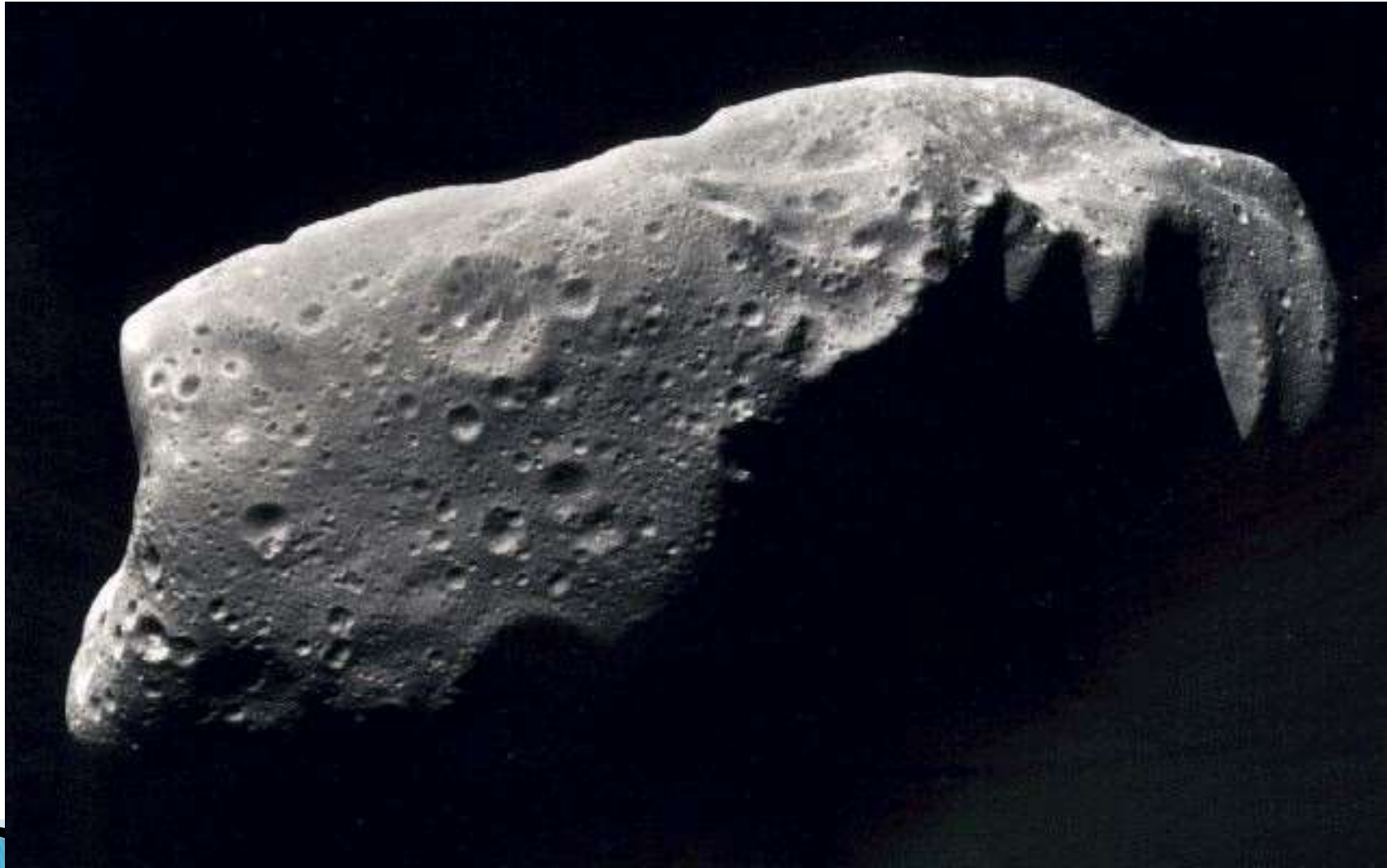


Structure of the Solar System

- ▶ The terrestrial planets are separated from the Gas Giants by a massive asteroid belt. (Between Mars and Jupiter)

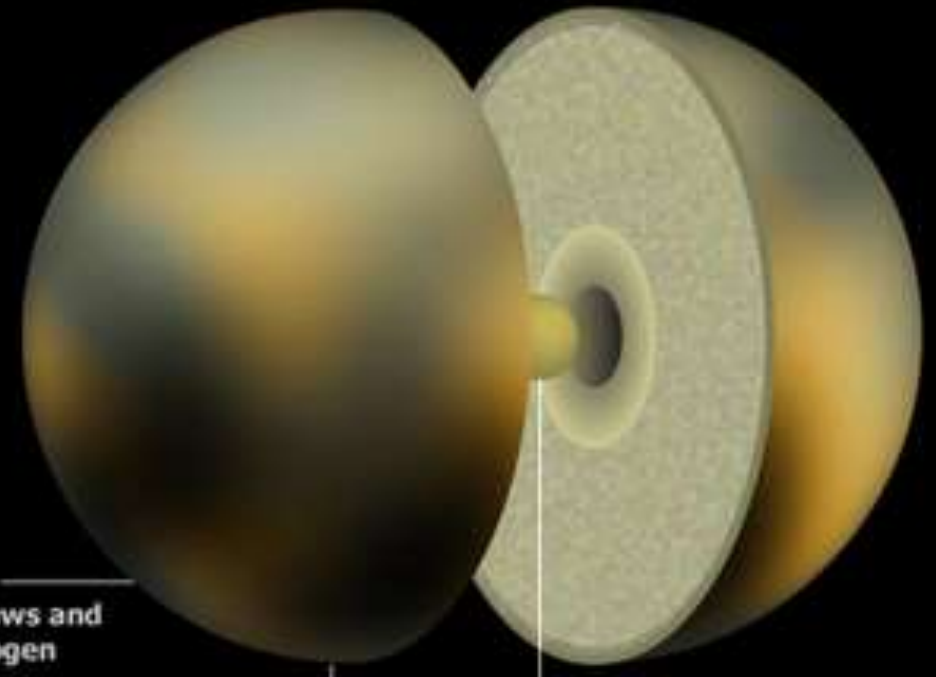


Sketch



Inside Dwarf Planet PLUTO

Discovered in 1930 and once considered a major planet, Pluto was reclassified as a dwarf planet in 2006. Pluto is sometimes considered a double planet system because its moon, Charon, is about half Pluto's size. It takes Pluto 248 years to orbit the Sun.



TEMPORARY ATMOSPHERE
Occurs when surface ice thaws and evaporates into mostly nitrogen with some methane.



Note: Drawing not to scale

SURFACE CONDITIONS
AIR PRESSURE: Minimal
TEMPERATURE: -375°F (-225°C)
WINDS: When atmosphere is present.



This image of Pluto and Charon was taken in 1994 shortly after the Hubble Space Telescope's optics had been repaired.

ROCK CORE Pluto's rocky core is probably surrounded by a mantle of ice, with methane and nitrogen frost coating its surface.

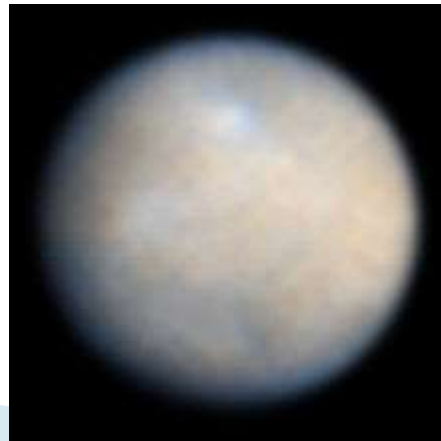


Pluto's diameter of 1,485 miles (2,390 km) is two-thirds that of the moon.

Dwarf Planets

- ▶ An object that does not fit the definition of a planet or a satellite.
- ▶ Orbits the Sun
- ▶ Planet's gravity forms a spherical body.
- ▶ Does NOT clear objects out of its path.
- ▶ Most found in the Kuiper Belt, at the edge of our Solar System.

Ceres

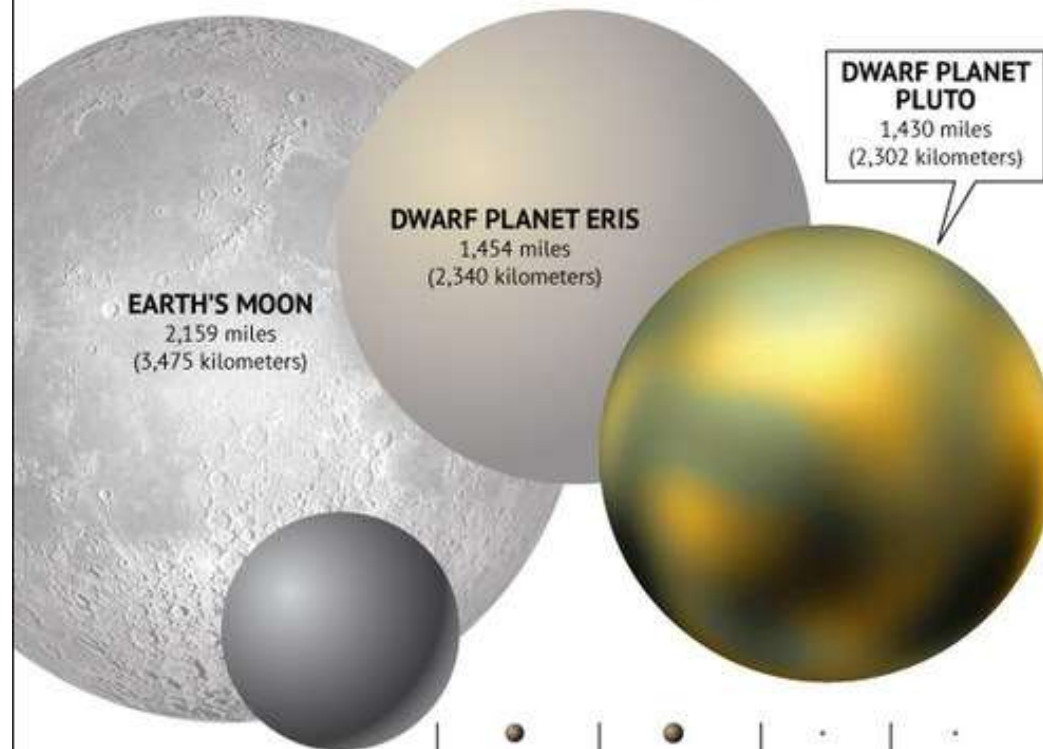


Pluto



Five Moons for Tiny Pluto

Pluto is the second-largest object in the outer reaches of our solar system, barely smaller than another dwarf planet, Eris. Pluto has one massive moon, Charon, which is tidally locked – the two bodies eternally face one another, just as our moon always presents the same face to Earth. In recent years, other small moons have been discovered orbiting Pluto.

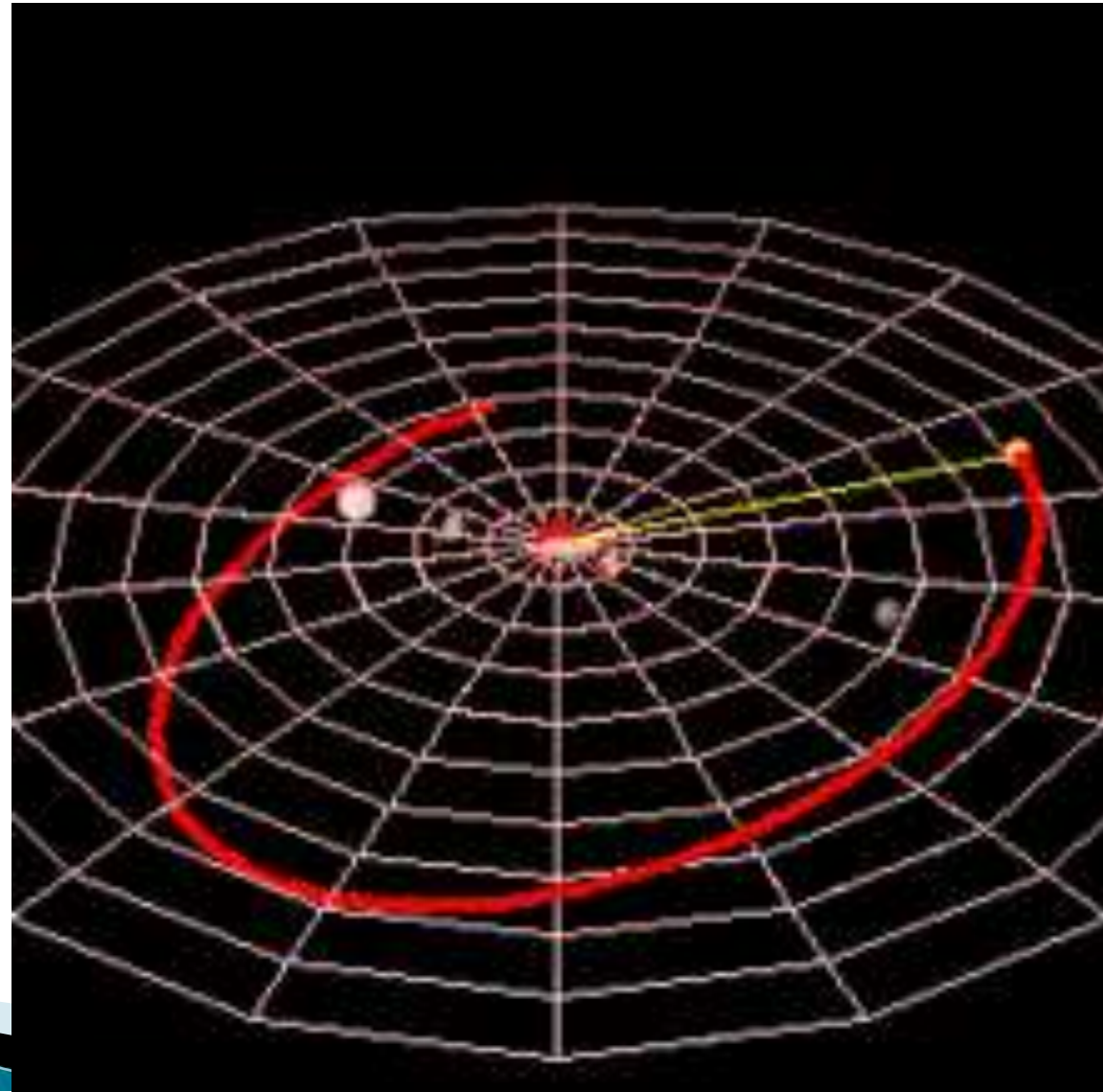


PLUTO'S MOONS:	CHARON	NIX	HYDRA	P4	P5
Year of discovery	1978	2005	2005	2011	2012
Diameter	648 miles (1,043 km)	31-62 miles (50-100 km)	31-62 miles (50-100 km)	8-21 miles (13-34 km)	6-15 miles (10-25 km)
Orbital period (Earth days)	6.4	24.9	38.2	32.1	not available

New Horizons Images of Pluto



Pluto's Orbit



**PLUTO WILL COMPLETE ITS FIRST
FULL ORBIT AROUND THE SUN
(SINCE IT'S DISCOVERY)**



ON MONDAY, MARCH 23rd 2178

Why Pluto is NOT a Planet...

- ▶ <http://www.youtube.com/watch?v=BKoRt-6pjAE&safe=active>

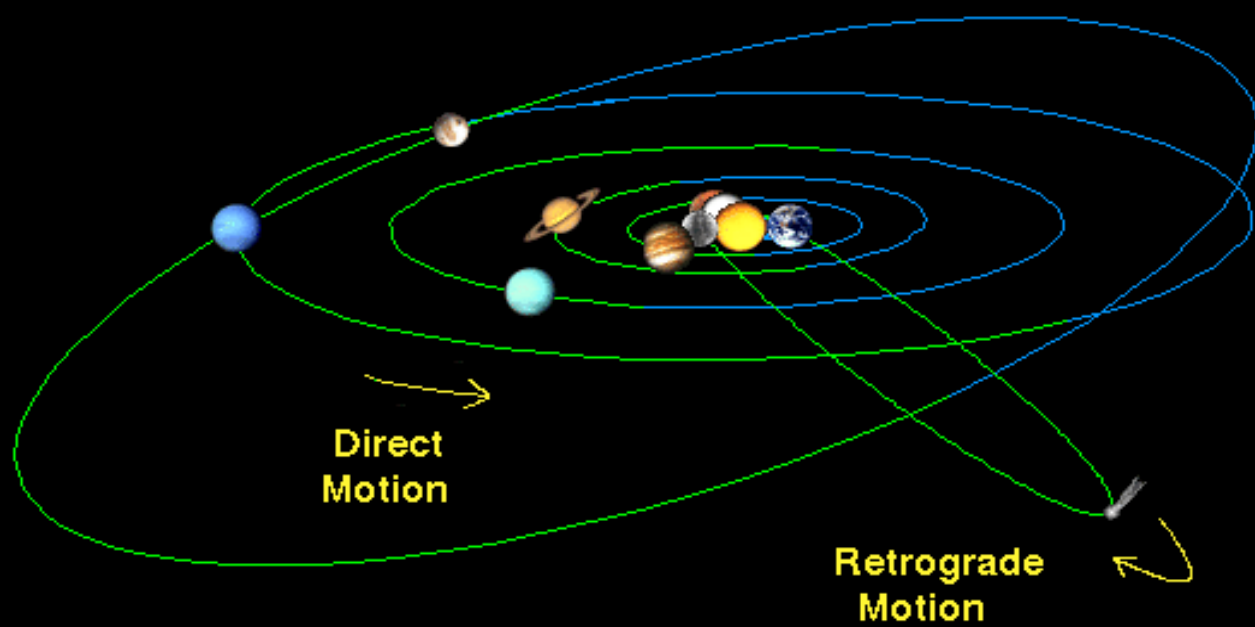
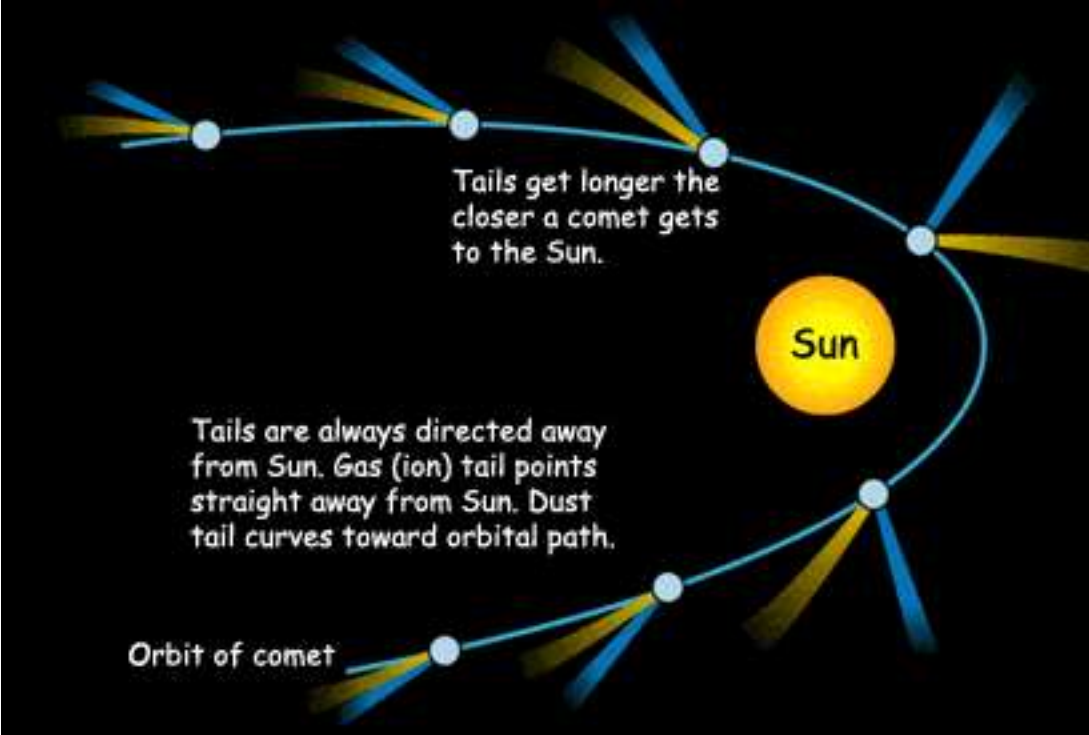
Comets

- ▶ A small icy body in the Solar System.
- ▶ Large collections of ice, dust and rock.
- ▶ When close to the Sun, it gives off a visible “tail” facing away from the Sun (melting ice)
- ▶ Can have huge elliptical orbits



Comet Hale–Bopp:





Sketch

