Liceo Linguistico Europeo

" Maria Immacolata "

&

Scuola Secondaria di 1 Grado

"G. Pascoli" di Erchie

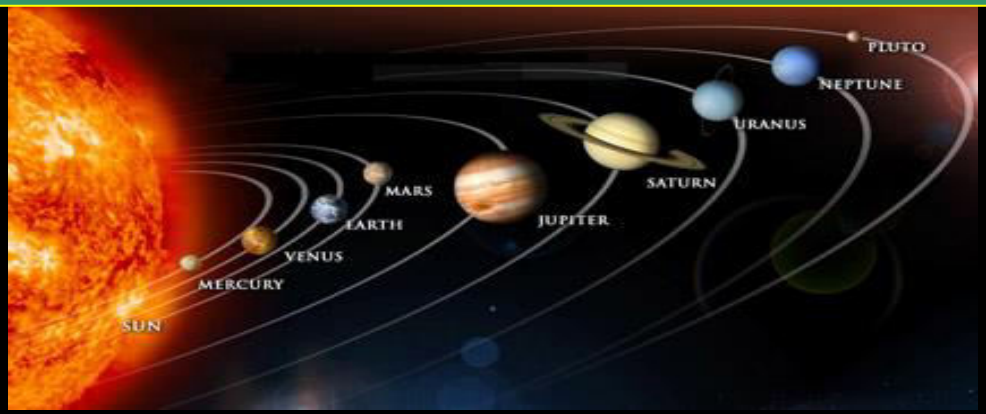
organizzano

Progetto di Sperimentazione Modulo *CLIL*:

The Solar System: our place in space

potenziamento classi terze – 4 ore

a.s. 2015-2016



What is CLIL?

CLIL stands for Content and Language Integrated Learning (Apprendimento integrato di Lingua e Contenuto)

Il termine *CLIL* fu coniato nel 1994 da David Marsh dell'Università finlandese di Jyväskylä ed Anne Malijers (Olanda)

Questa metodologia didattica si rivelò subito efficace per la diffusione del plurilinguismo e del pluriculturalismo.

Oggigiorno il *CLIL* viene utilizzato come termine generico per descrivere un approccio didattico in cui viene utilizzata una seconda lingua per insegnare certe materie del curriculum, diverse dalle lezioni in lingua.

L'insegnamento attraverso *CLIL* non sostituisce l'insegnamento di una Lingua Straniera ma si integra con esso...

- **Dual focused (language +content)**

- **Immersion**

- **Microlanguage (linguaggio settoriale)**

CLIL Basics: the 4C's

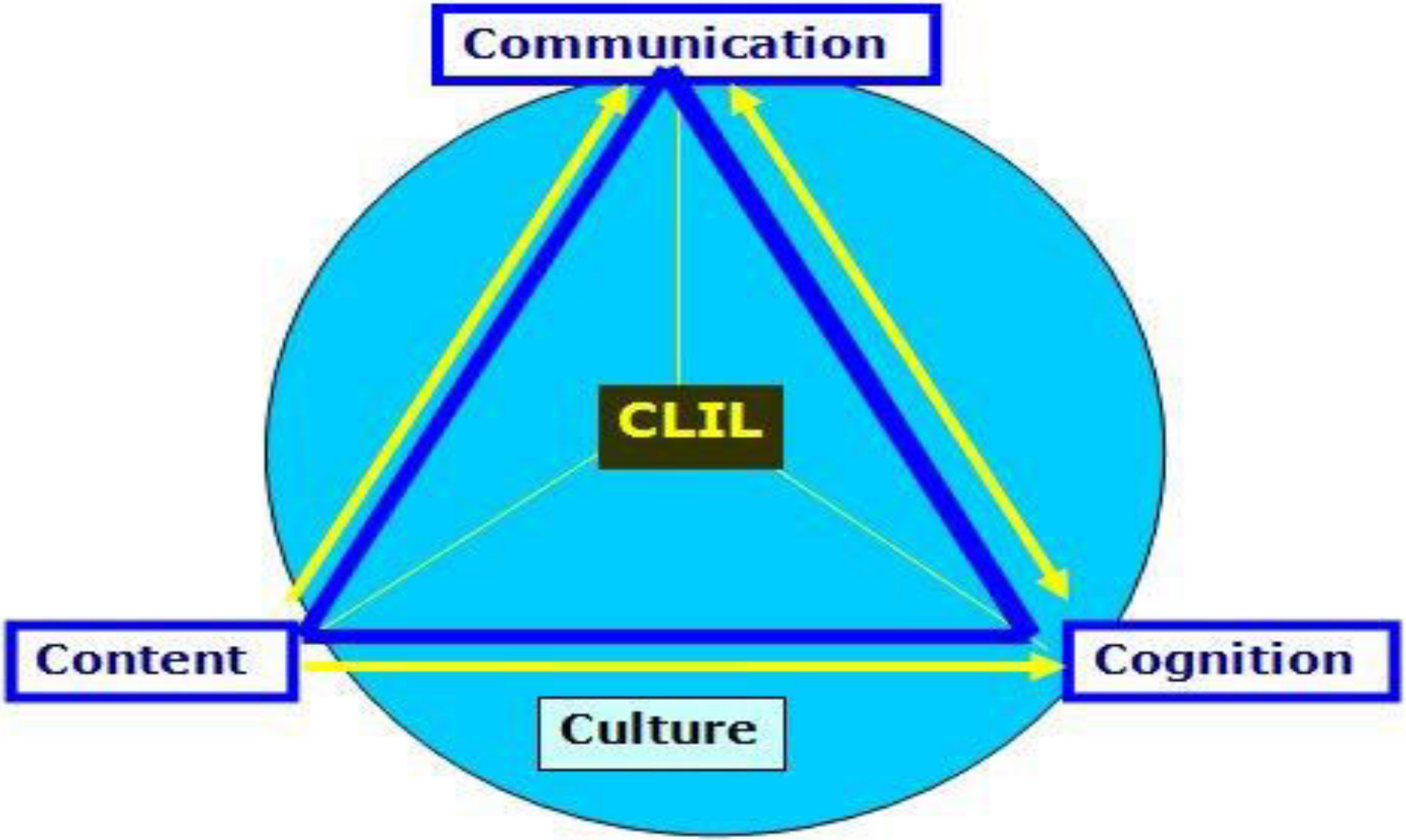
Content

Communication

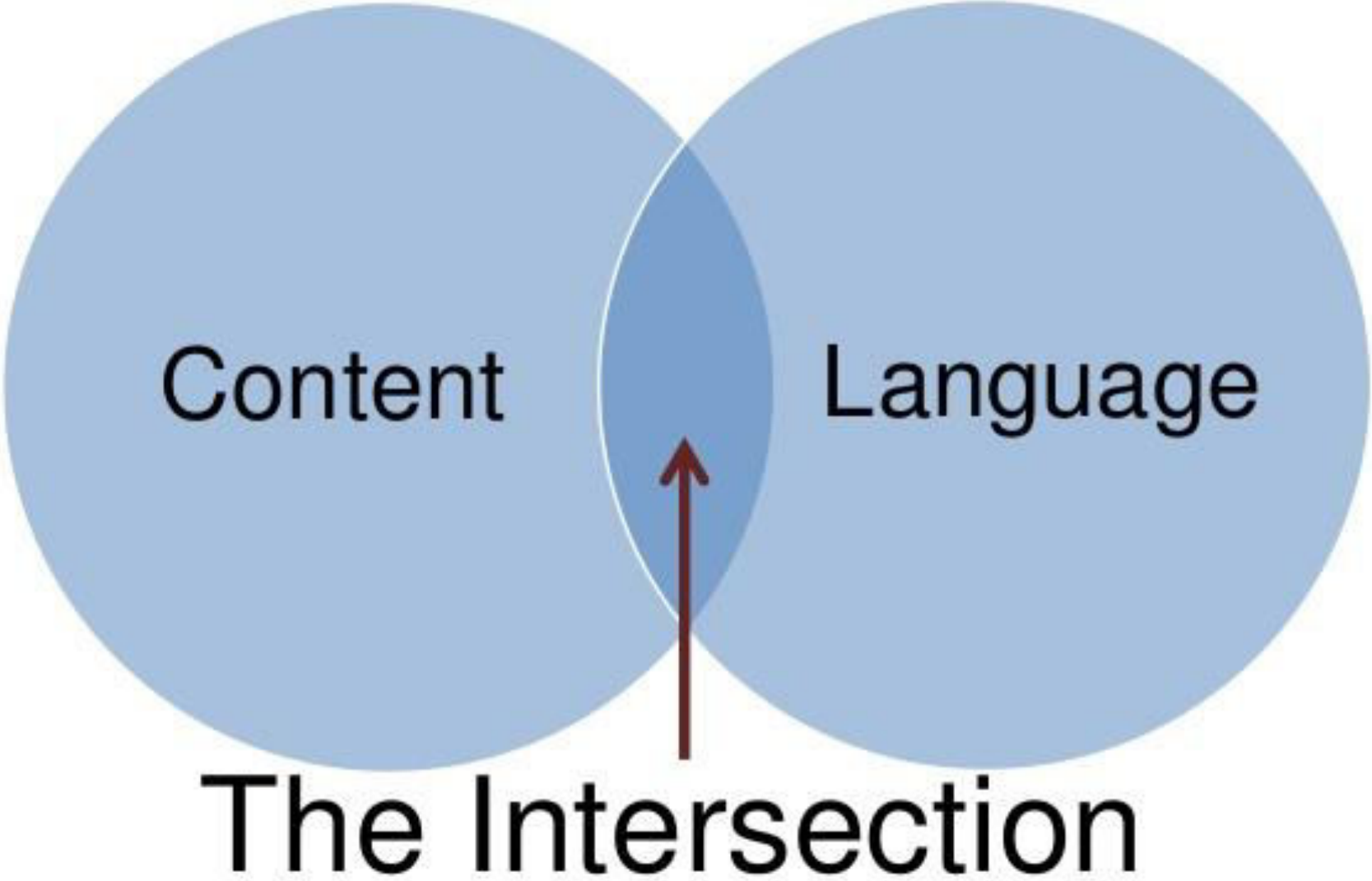
Culture

Cognition

The Pyramid

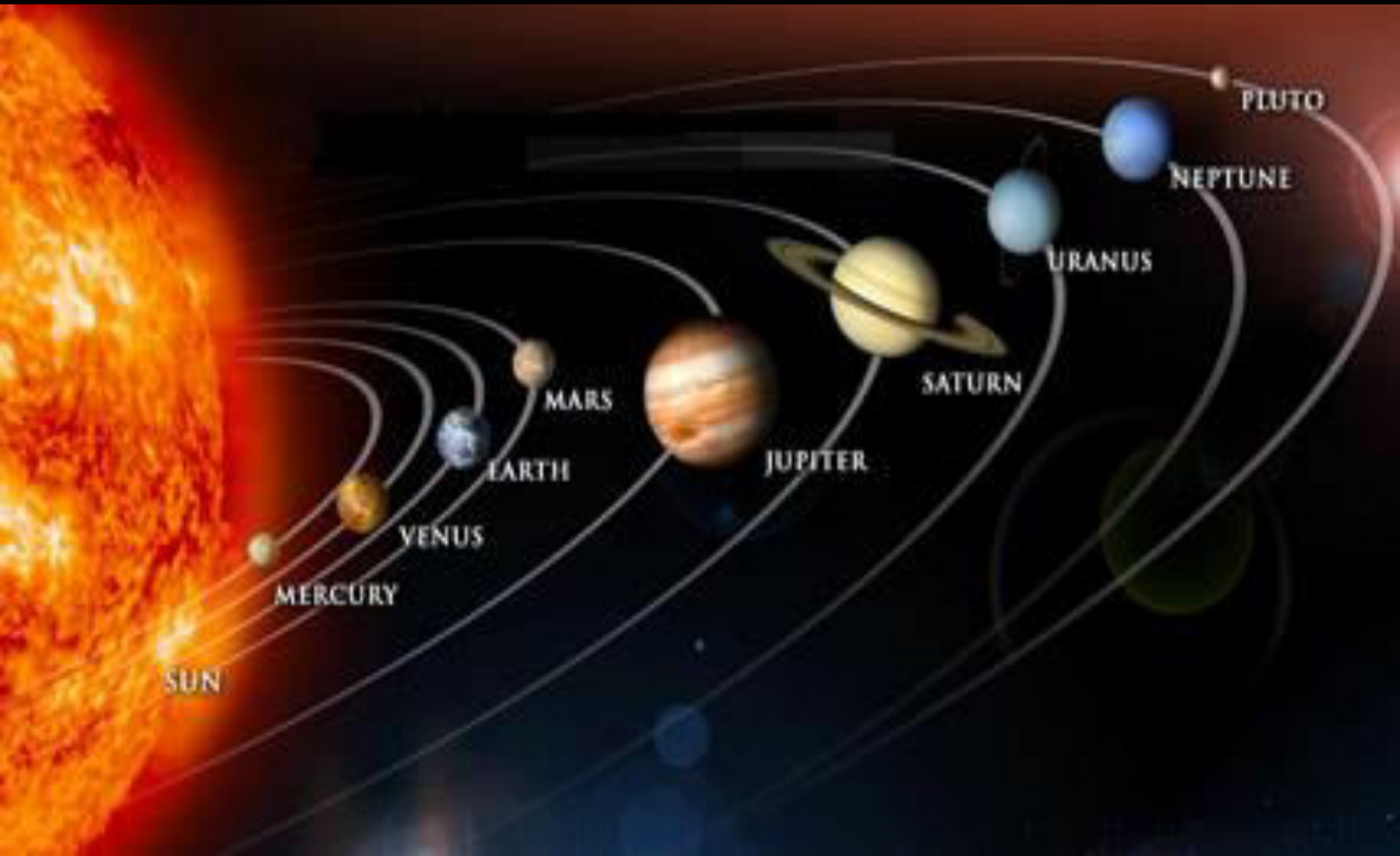


So . . . What is CLIL?



KEEP
CALM
AND
LET'S
START

The Solar System

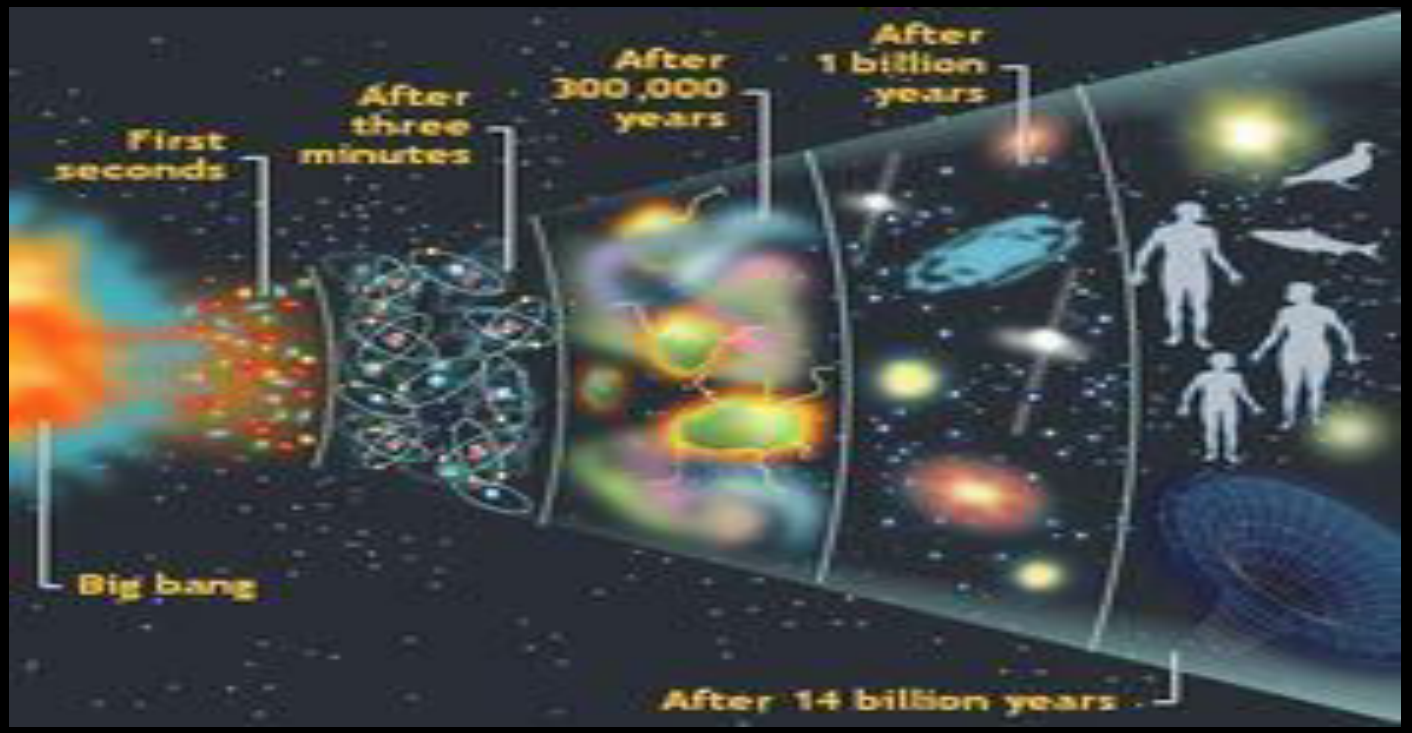


Contents:

The Universe

When we talk about the Universe we mean everything that exists: planets, stars, galaxies. We don't know how big the Universe is but we know that is getting bigger…

Most Scientists believe that the Universe came into being more than 13,7 billions years ago. A tiny spot became very hot and dense and exploded into what we know the Universe. This event is called **The Big Bang**.



After the Big Bang the earliest galaxies were born…

What is a galaxy 

It is a huge group of stars. There are millions of galaxies in the universe.

Stars and planets are astral bodies.

What is a Star 

A big, fiery ball that makes and gives off heat and light. (The Sun is a star- it looks a lot bigger than others stars because it's nearer Earth)

Our Solar System is part of a gigantic group of stars (galaxy) called

the Milky Way


The Milky Way

The Milky Way is so called because when ancient Greek astronomers looked up at the sky, they saw a white band of light and called it the "river of milk". The stars in the milky way are spread out in a spiral, with several arms coiling around the centre. Each arm is made up of stars, gas and dust. Our solar system lies in one of these arms.

Billion of stars make up the Milky way. Stars are constantly changing. Over billions of years they are born, change size, temperature and colour and eventually –die.

Birth of a Star

Stars are born in giant gas and dust clouds. As everything joins together and thickens, it gets hotter and hotter, until it explodes into heart and light- and a star is born.

Death of a Star

After shining for billions of years a stars gets old and expands. It then burns up and dies, releasing its gas and atoms into space.

TYPES OF STARS

Stars vary in colour, temperature and how long they live for. They can be red, yellow, or blu-white. A Star's colour depends on how hot it is.

Blu-White Stars ➡ are the hottest

Yellow Stars

Red Stars ➡ are the coolest


Our place in Space...

Our Solar System

Solar means “of the Sun”. Our solar System is the Sun and everything that orbits it.

If you look up at the sky on a clear night, you'll see our Moon and thousands of twinkling stars. Also up in the sky is a fiery star that you can only see in the daytime- this is the Sun!

Several cool objects orbit the Sun: the planets and thousand of smaller particles called asteroids. Earth is the third planet from the Sun. Mercury, Venus, Earth and Mars are rocky planets; Jupiter, Saturn, Uranus and Neptune are gaseous planets.

What is a Planet 

It is a large object that orbits the Sun.

There are many planets in our Solar System.

What is an asteroid 

A lump of rock or metal orbiting the Sun. Thousand of them are concentrated between Mars and Jupiter called Asteroid Belt

What is a comet

A lump of dirty ice mixed with dust and grit which travels around the sun in an enormous oval shaped orbit.

Our Earth is part of

the Solar System which is part of

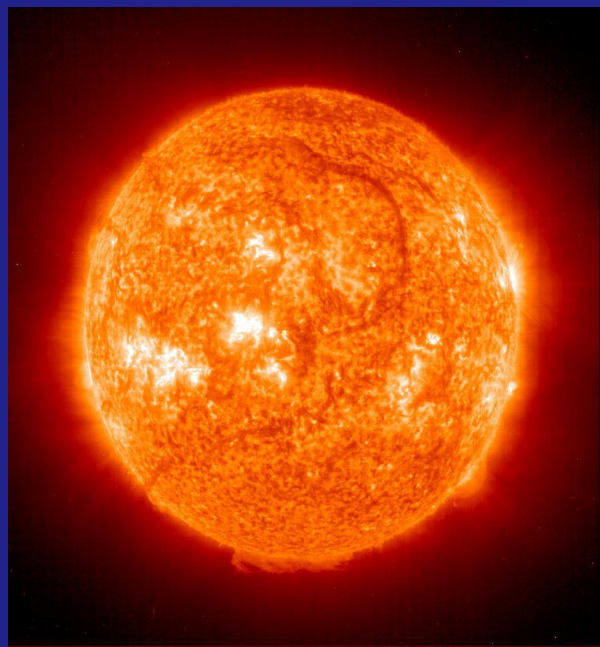
the Milky way which is part of

the Universe

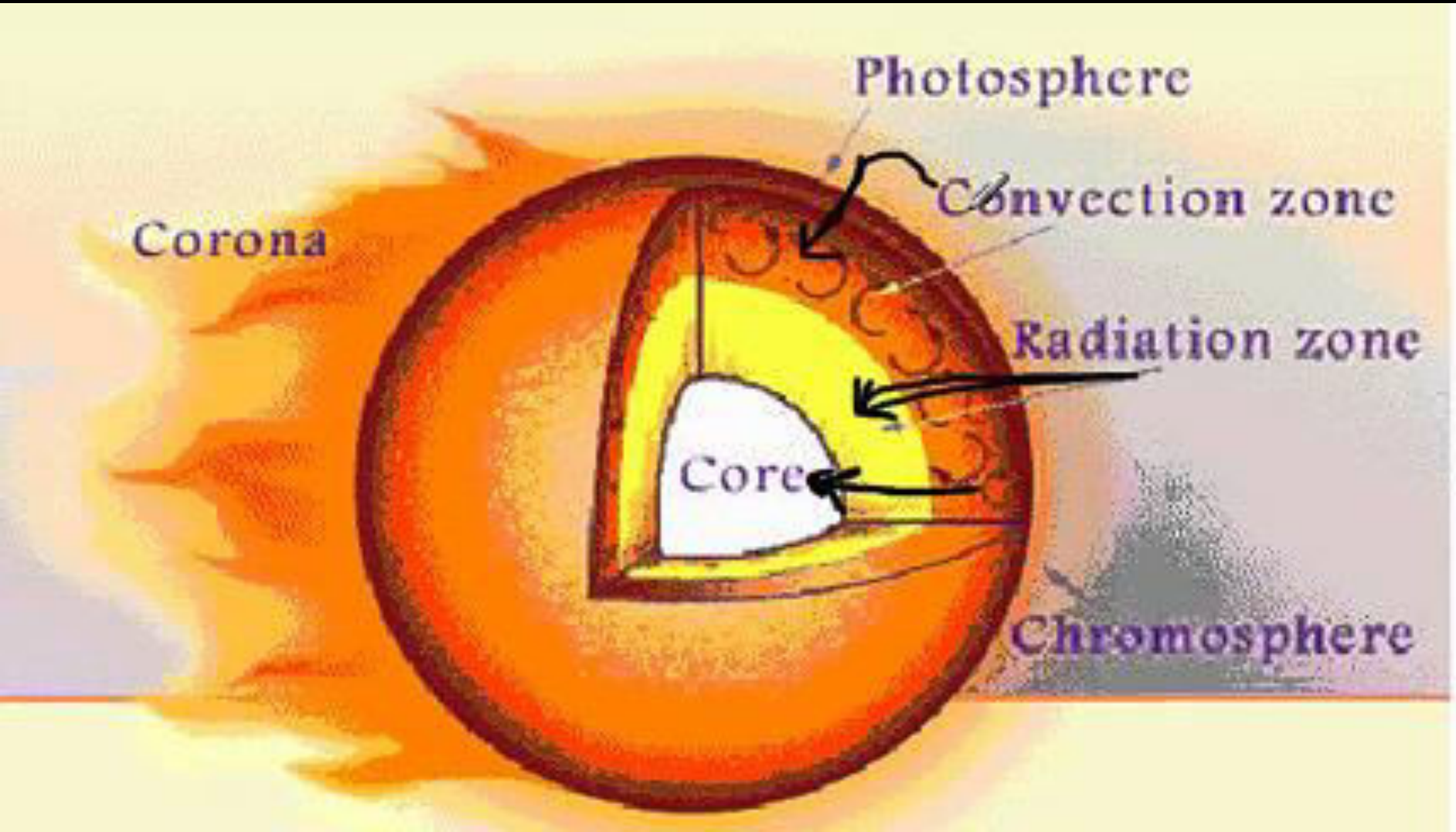
The Sun

The Sun is the most important thing in our Solar System. It is a star, a ball of gas fuelled by nuclear reactions. It gives us light and heat.

Life on Earth wouldn't exist without the Sun.



The Structure of The Sun



The planets travel around the Sun following paths in loops called orbits. All the planets go around in the same direction, but at different speed and distances, spinning as they move. As well as the planets, there are more than 100 moons, rocky lumps called asteroids and icy balls called comets. Everything is held in place by a force called gravity which comes from the Sun.

Inner and Outer Planets

(separated by a band of asteroids called Asteroid Belt)

Inner Planets

(nearest the Sun; they are made of rock and metal)

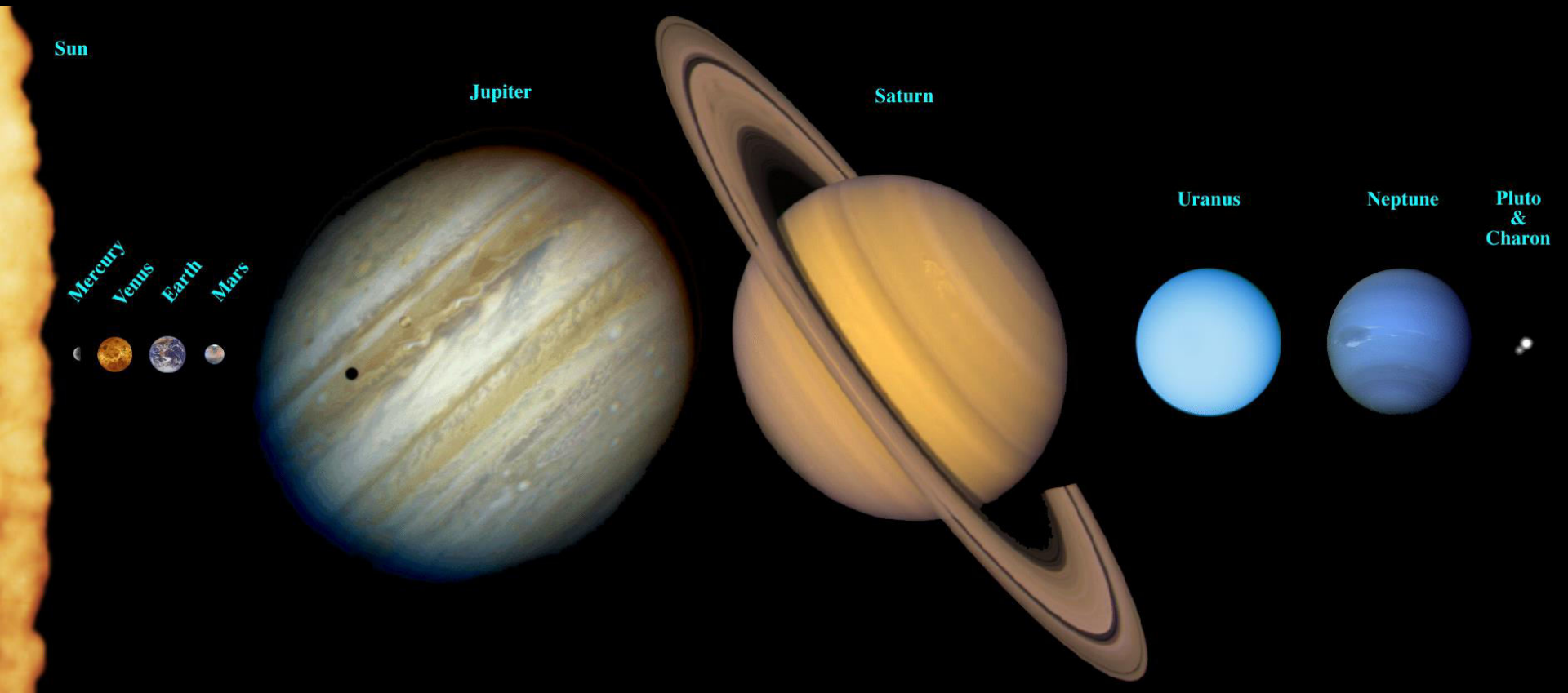
- Mercury
- Venus
- Earth
- Mars

Outer Planets

(furthest from the Sun; they are mainly made of gas and ice).

- Jupiter
- Saturn
- Uranus
- Neptune
- Pluto

The Relative Size of the Planets in the Solar System

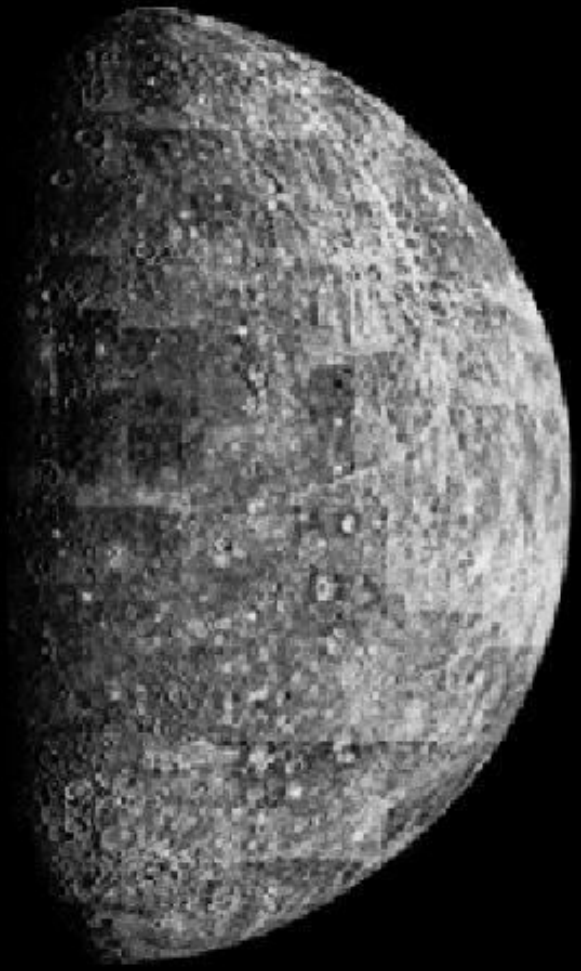


The Planets of the Solar System

- Planets are categorized according to composition and size. There are two main categories of planets:
  - small rocky planets (Mercury, Venus, Earth, Mars)
  - gas giants (Jupiter, Saturn, Uranus, and Neptune)
  - Dwarf planets (Pluto, Eris, Makemake, Haumea)

Characteristics of Small Rocky Planets

- They are made up mostly of rock and metal.
- They are very heavy.
- They move slowly in space.
- They have no rings and few moons (if any).
- They have a diameter of less than 13,000 km.

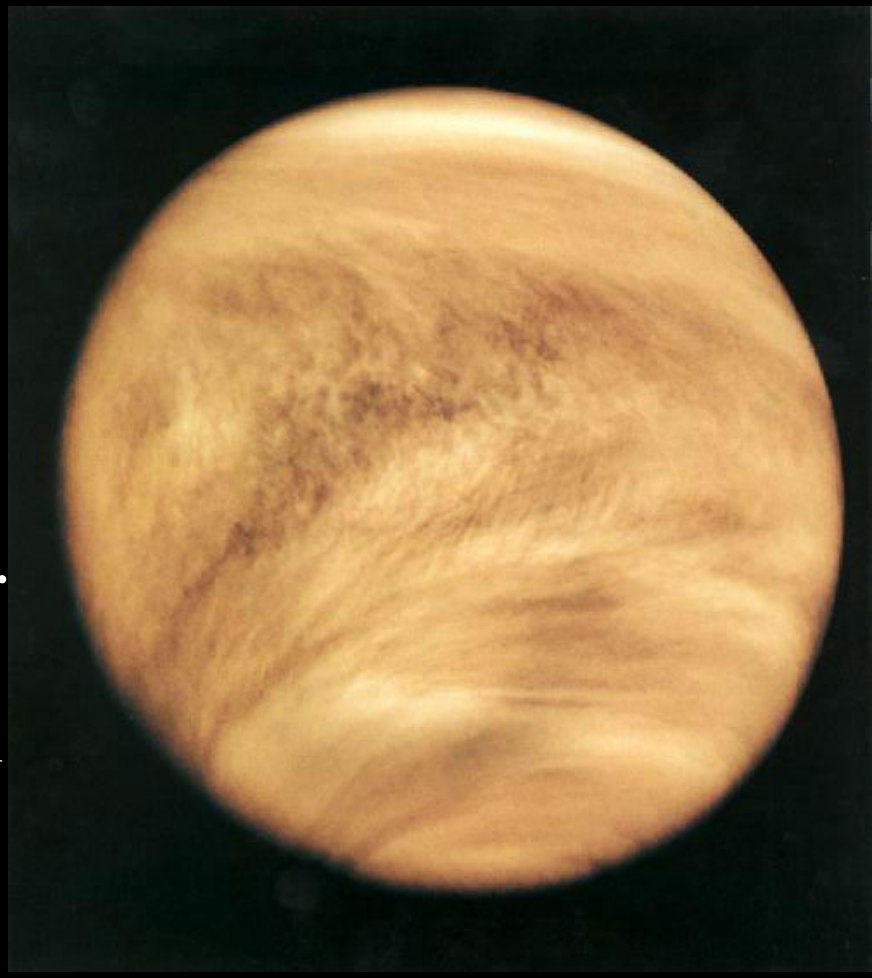


Mercury

- Mercury has a revolution period of 88 days. Mercury has extreme temperature fluctuations, ranging from 800°F (daytime) to -270°F (nighttime).
- Even though it is the closest planet to the sun, Scientists believe there is ICE on Mercury! The ice is protected from the sun's heat by crater shadows.

Venus

- Venus is the brightest object in the sky after the sun and moon because its atmosphere reflects sunlight so well. People often mistake it for a star.
- Its maximum surface temperature may reach 900°F.
- Venus has no moons and takes 225 days to complete an orbit.



Earth

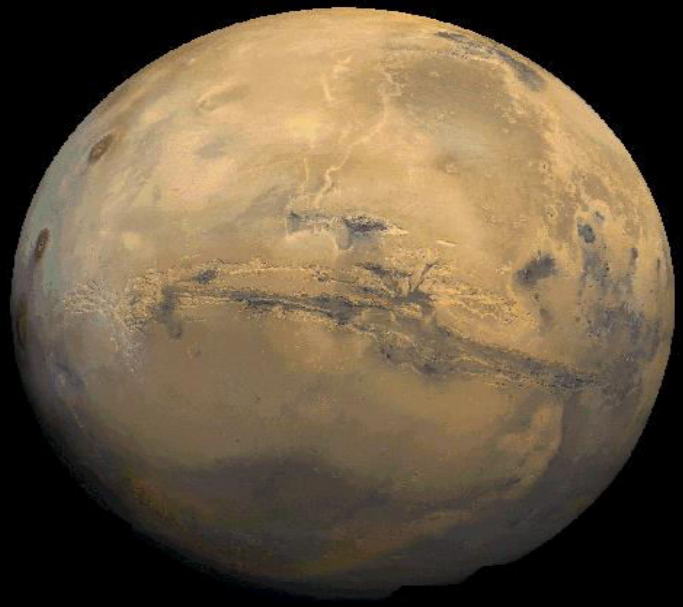
- Earth is the only planet known to support living organisms.
- Earth's surface is composed of 71% water.
  - Water is necessary for life on Earth.
  - The oceans help maintain Earth's stable temperatures.
- Earth has one moon and an oxygen rich atmosphere.

Earth's Moon

- It takes the moon approximately 29 days to complete one rotation. The same side of the moon always faces us.
- The moon's surface is covered in dust and rocky debris from meteor impacts. It has no water or atmosphere.
- The moon reflects light from the sun onto the earth's surface.

Mars

- Like Earth, Mars has ice caps at its poles.
- Mars has the largest volcano in our solar system: Olympus Mons. Olympus Mons is approximately 15 miles high.
- Mars appears red because of iron oxide, or rust, in its soil.
- Mars has two moons and takes about two years to complete an orbit.



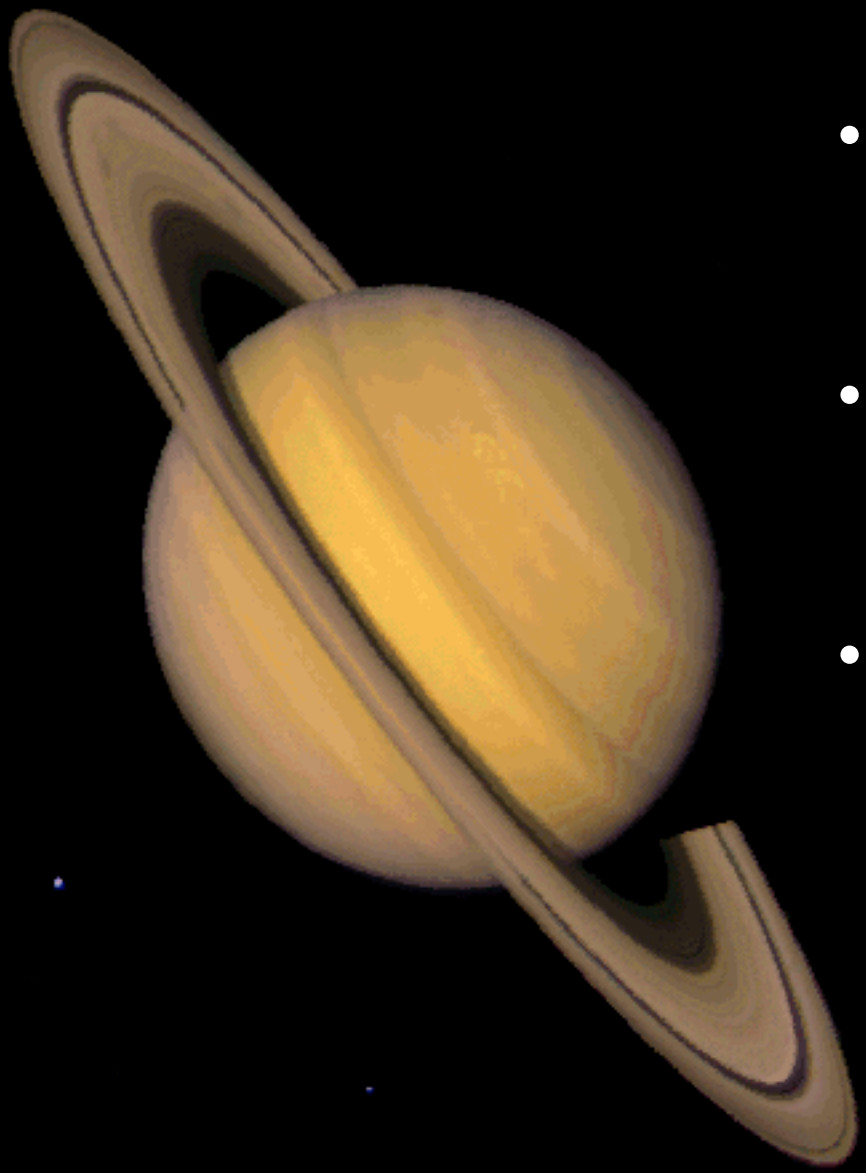
Characteristics of Gas Giants

- They are made up mostly of gases (primarily hydrogen & helium).
- They are very light for their size.
- They move quickly in space.
- They have rings and many moons.
- They have a diameter of less than 48,000 km

Jupiter

- Jupiter is the largest and most massive planet.
- It's diameter is 11 times bigger than that of the Earth's.
- It takes about 12 years for Jupiter to orbit the sun.
- Jupiter has 16 known moons.

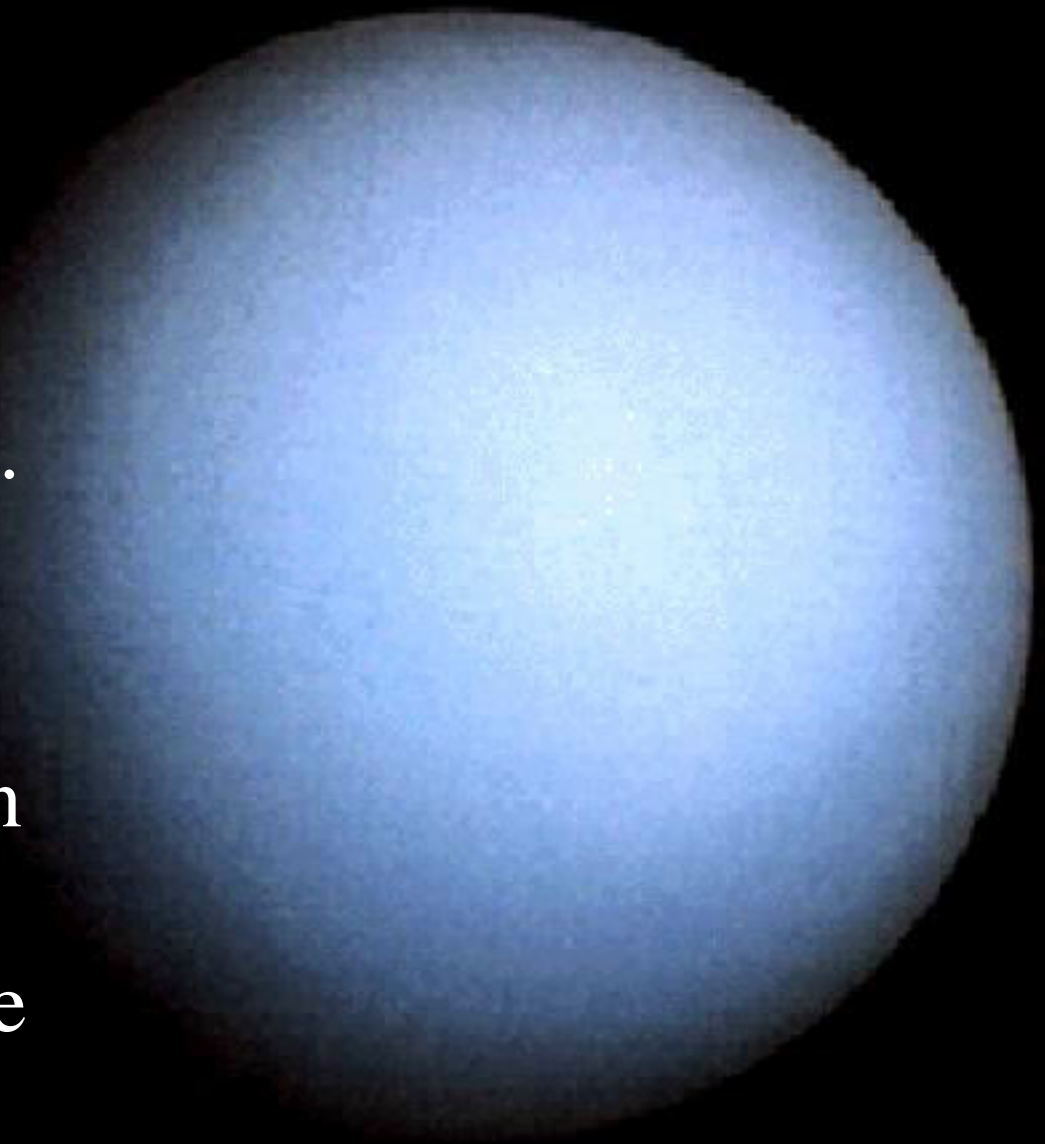
Saturn



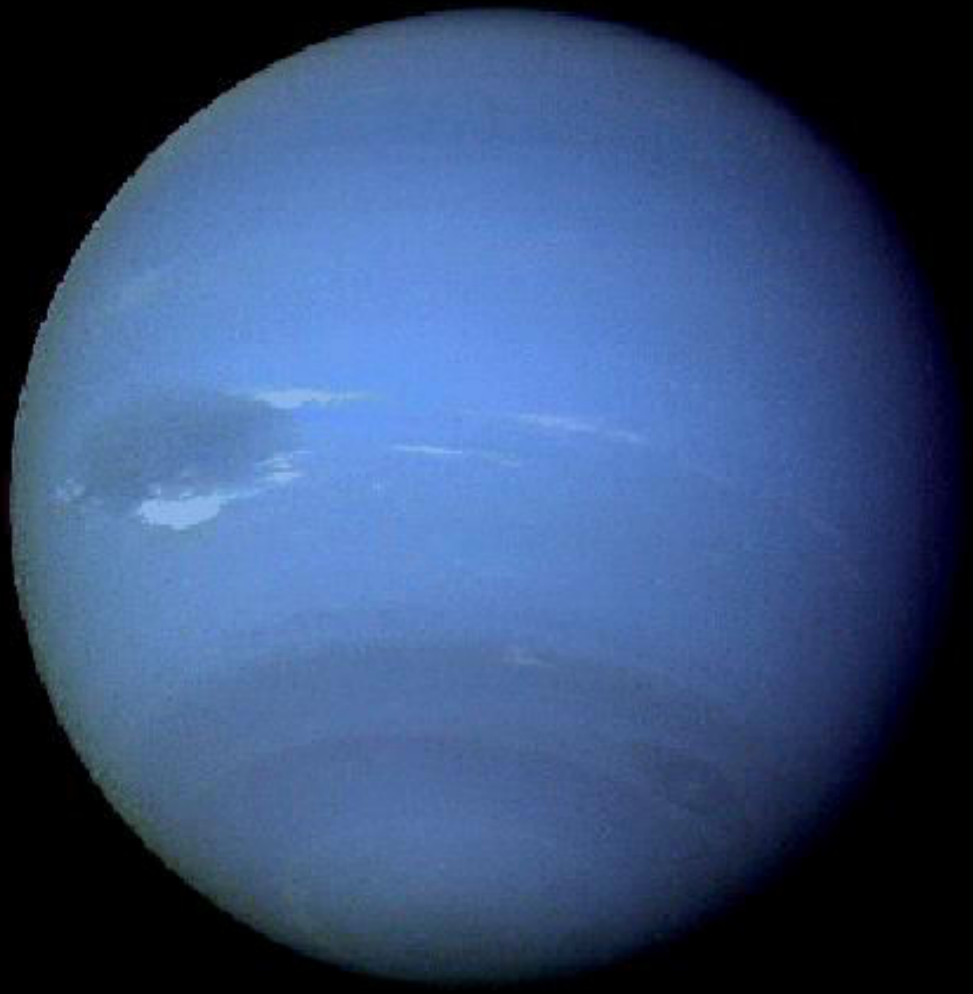
- Saturn is composed almost entirely of hydrogen and helium.
- Saturn has many rings made of ice. Saturn's rings are very wide.
- Saturn has 18 known moons, some of which orbit inside the rings!
- It takes Saturn about 30 years to orbit the sun.

Uranus

- Uranus is blue in color due to methane gas in its atmosphere.
- Uranus has 11 dark rings surrounding it.
- Uranus has 21 known moons and takes 84 years to complete one orbit.



Neptune



- Neptune has the fastest winds in the solar system.
- Neptune is also blue in color due to methane gas in its atmosphere.
- Neptune takes 165 years to orbit the sun and has 8 moons.

Nano Planets

- They are out of the orbit of Neptune

Pluto

- Pluto has only one moon and takes about 249 years to orbit the sun.
- Part of Pluto's orbit passes inside that of Neptune, so at times Neptune is the planet farthest from the sun.
- Pluto was located and named in 1930, but today Pluto is no longer considered a planet.