THE SOLAR SYSTEM

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INTRODUCTION

This paperwork in for the public class that we present this year to our classmates. It is an important assignment because as a team we will learn to work together and have a big responsibility that we never had before; the most important thing of all is that we learn about our solar system.

It is one of the most interesting things to the humanity because it hasn't been completely charactered yet. It has been a great mystery since its origins. It makes part of a galaxy that is so huge that we only know few things about it. Until now we know that is conformed by a sun, some planets that are already recognized (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto), it has moons, comets and Stars. We want to investigate and explore all the information available to share with others. Also we will make a presentation and a model to share this information with our audience.

OBJECTIVES

- To explain how the Solar System is and how it Works.
- To analyze each planet and how it is.
- Learn more about the bodies that forms the Solar System (Stars, planets, satellites, asteroids, meteorites, comets and moons).
- Recognize the influence of the planet movement on the course of days and nights (rotation and translation of the planets)

THE SOLAR SYSTEM

The Solar system is full of known and unknown planets, moons, asteroids, comets, and many other exciting objects. It is made up of all the planets that orbits our Sun.

The creation of our Solar System took place approximately 4.6 billion of years ago. It belongs to the galaxy called Milky Way, consisting of millions of stars, located along a flat disk of 100,000 light-years, it is a large, spiral galaxy. Scientists believe that this Solar System evolved from a giant cloud of dust and gas. They believe that this dust and gas began to collapse under the weight of its own gravity. As it did so, the matter contained within this could begin moving in a giant circle, much like the water in a drain moves around the center of the drain in a circle. At the center of this spinning cloud, a small star began to form. This star grew larger and larger as it collected more and more of the dust and gas that collapsed into it.

Further away from the center of this mass where the star was forming, there were smaller clumps of dust and gas that were also collapsing. The star in the center eventually ignited forming our Sun, while the smaller clumps became the planets, minor planets, moons, comets, and asteroids. Once ignited, the Sun's powerful solar winds began to blow. These winds, which are made up of atomic particles being blown outward from the Sun, slowly pushed the remaining gas and dust out of the Solar System. With no more gas or dust, the planets, minor planets, moons, comets, and asteroids stopped growing and the solar system is finally create.

There are 8 planets in our solar system, they are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. With the exception of Neptune and Uranus the other 6 planets can be seen unaided and all 8 are visible with a small telescope or binoculars.

The sun

It is the star of our solar system. It is a gigantic ball of gas and fire. It sends ultraviolet rays that illuminate Earth and give it life. The Sun is the center of our solar system, contains around 98% of all the material in the Solar System. It is believed to be over 4 billion years old. The Sun spins slowly on its axis as it revolves around the galaxy. The Sun is the only celestial body of the solar system that emits its own light, 9 which is produced by the combustion of hydrogen and its transformation and helium by nuclear fusion.
The center, or core, of the Sun is very hot. A process called "nuclear fusion" takes place there. Nuclear fusion produces a lot of energy. Some of this energy travels out into space as heat and light.

Facts about the Sun

To fit the sun you need at least one million of Earths, but a day the sun will be about the size of the Earth.
It is a perfect circle.
The center of the sun can reach 15 million degrees Celsius.
It travels at 220 KM per second.
It has a very strong magnetic field.

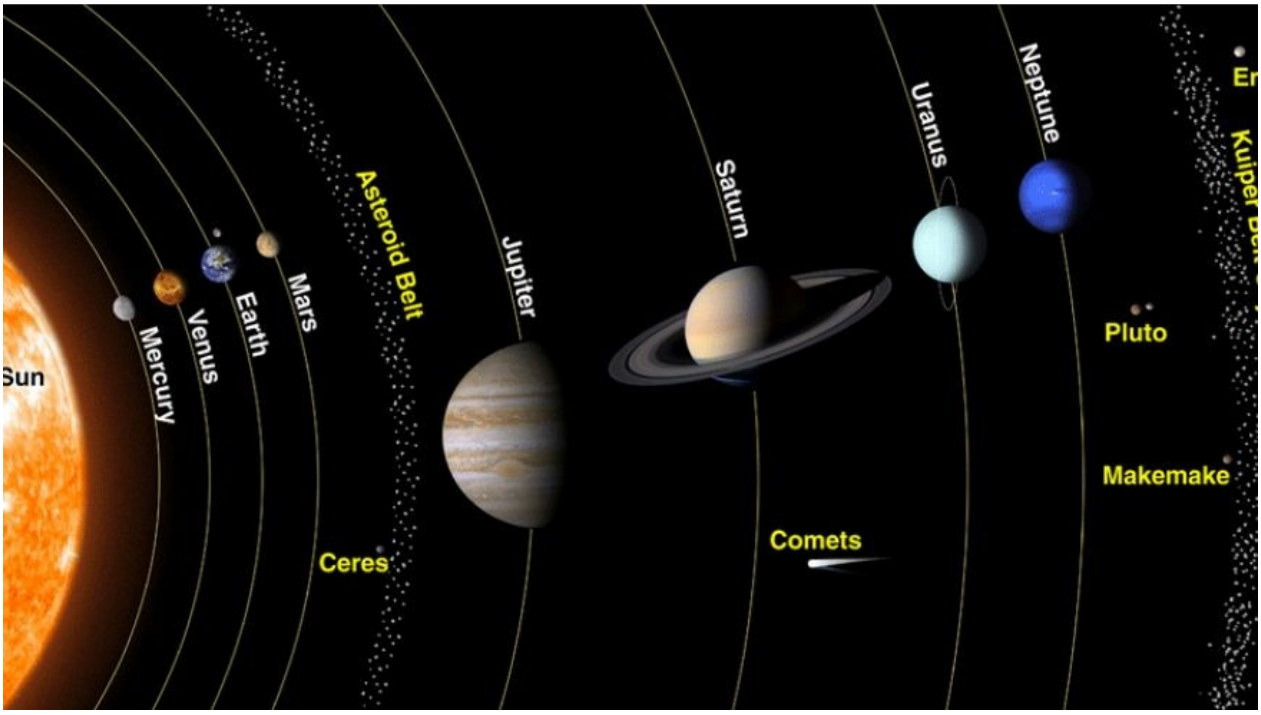
What is a Planet?

Planets are among the many worlds and smaller objects that orbit the Sun. The formal definition of planet, as voted on by the International Astronomical Union in 2006, is as follows:
A planet is a celestial body that:
- is in orbit around the Sun
- has sufficient mass for its self-gravity to overcome rigid body forces so that it assumes a

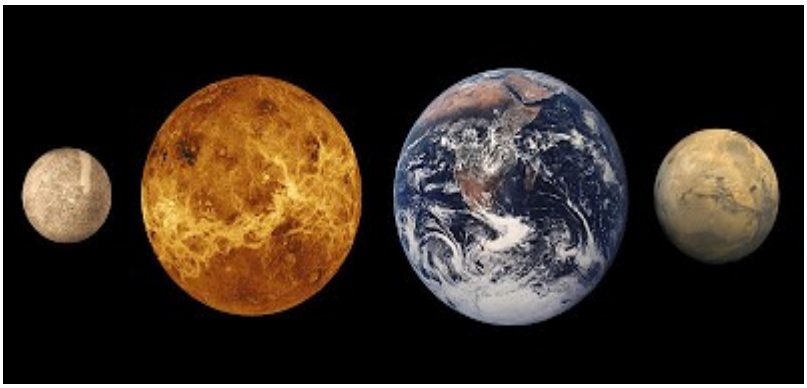
hydrostatic equilibrium (nearly round) shape, and
- has cleared the neighbourhood around its orbit.
Under this definition, Pluto is NOT a planet, but has been deemed a dwarf planet because it has not yet cleared its orbit. This definition is under discussion, particularly by members of the planetary science community, and it may yet be further refined.

Planets of the Solar System

The solar system has 9 planets called: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. This planets have different sizes and they are divided into inner planets and outer or giant planets.

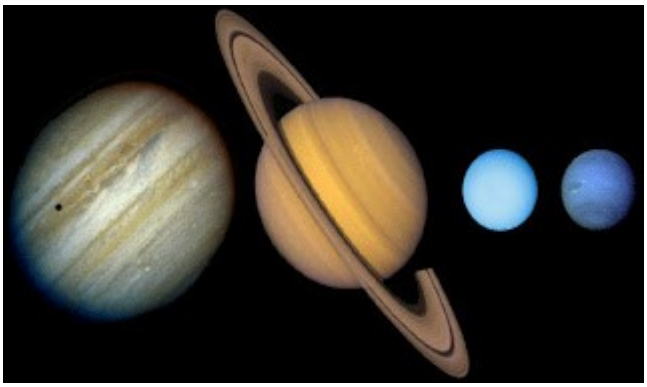


The inner planets are the four planets closest to the Sun: Mercury, Venus, Earth and Mars. They are made of rock, small and of high density mainly by transparent and rocky materials with a well differentiated internal structure and with a similar size.

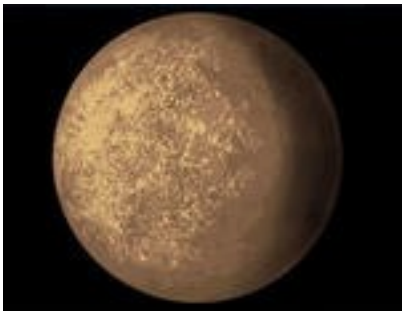


The outer planets (also called giants or gaseous) are those that are located beyond the belt of asteroids, that is, Jupiter, Saturn, Uranus and Neptune. The giant planets of our solar system

are formed by deep atmospheres of hydrogen and helium that make up the bulk of the mass. Jupiter and Saturn are called gaseous giants, while Uranus and Neptune are often called icy giants.



Mercury

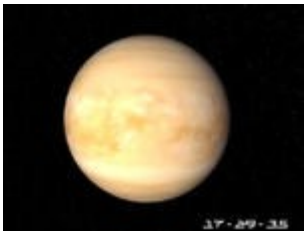


Mercury is the first planet from the Sun. It is not very easy to observe since it is always close to the Sun in the sky, the planet speeds around the Sun once every 88 days. However, it spins on its axis very slowly – once every 58.6 days.

Mercury is a small, rocky world.

Mercury is very like the Moon. Its surface is covered with impact craters. It has no atmosphere and no water.

Venus



Like the Earth, Venus has an atmosphere. However, Venus' atmosphere is far thicker than that of the Earth, making it difficult for modern science to penetrate. There are numerous volcanoes and many mountains that appear misshapen.

Earth

Earth is our planet and the only one is the largest of the rocky planets. That makes it retain a layer of gases, the atmosphere, which scatters light and absorbs heat. By day it prevents the Earth from getting too hot, at night, to cool.

Seven out of every ten parts of the earth's surface are covered with water. The seas and oceans also help regulate the temperature. The water that evaporates forms clouds and falls in the form of rain or snow, forming rivers and lakes. At poles, which receive little solar energy, the water is freezing and forms the polar ice caps.

The Earth is not a perfect sphere, but has a pear shape.

The Earth has one moon. Its name is The Moon.

THE MOON revolves around the Earth and takes almost a month to go around. It always shows us the same face. It shines at night because it reflects the light of the sun.

Mars

Mars is more like the Earth's than any of the other planets.
Evidence suggests that Mars once had rivers, streams, lakes, and even an ocean. As Mars' atmosphere slowly depleted into outer space, the surface water began to permanently evaporate. Today the only water on Mars in either frozen in the polar caps or underground.

Jupiter

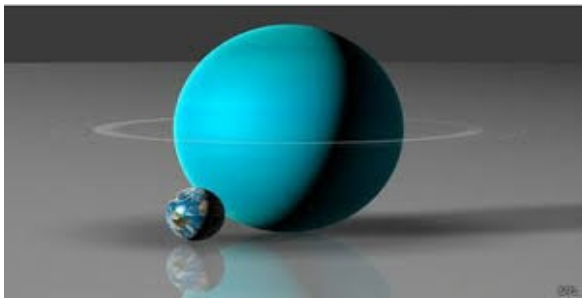
Jupiter is by far the largest planet in our Solar System. The Earth could fit inside Jupiter more than 1000 times.
Jupiter is a very stormy planet. There are storms found throughout the atmosphere, and most of the storms seem to never end. The many different cloud formations and storms in the atmosphere also make Jupiter a very colorful planet.

Jupiter's great red spot, is where a giant storm has been raging for at least 300 years. This red spot is also called "The Eye of Jupiter" because of its shape. This storm's super hurricane winds blow across an area larger than the Earth.

Saturn

Saturn is similar to Jupiter, but it is much smaller. It is the second largest planet in our Solar System and it is a gas giant like Jupiter. Under the clouds of methane, hydrogen and helium, the sky gradually turns into liquid until it becomes a giant ocean of liquid chemicals.
Saturn is the least dense planet in our Solar System. It is made up of mostly hydrogen and helium, which are the two lightest elements in the universe and thus make Saturn the lightest planet that we know of.
Saturn is such a lightweight planet and it spins so fast, Saturn is not perfectly round like most of the other planets. Like Jupiter, Saturn is wider in the middle and narrower near its top and bottom.
Saturn is most well-known for its rings. However, it is not the only planet with rings. Jupiter, Uranus and Neptune also have rings. Saturn is a favorite object for many observers. Its beautiful rings are 169,800 miles wide (approx. 273,266 km). The rings are split into categories, being 7 in total, each named From A to G. The rings are not solid but rather are made up of particles of ice, dust and rocks. The rings are held in place around Saturn by the moons that also orbit this large planet. The gravity of these moons also cause the gaps that are seen in between the rings.

Uranus

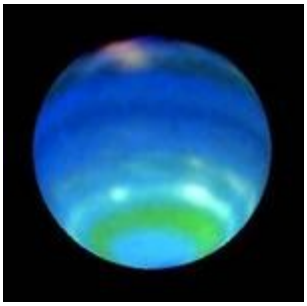
Like Jupiter and Saturn, Uranus is a gas giant. But Uranus is a little different. Unlike all the other planets and most of the moons in our Solar System, Uranus spins on its side. It is believed that long ago a very large object smashed into this planet. The crash was so powerful that it completely changed the direction of Uranus' planetary rotation.

It is the seventh planet from the Sun, the third largest and the fourth with the most mass of the Solar System. Uranus is also the first to be discovered thanks to the telescope, in 1781.

The atmosphere of Uranus consists of hydrogen, methane and other hydrocarbons. Methane absorbs red light, so it reflects blue and green tones.

Its distance from the Sun is twice that of Saturn. It is so far, from Uranus, the Sun seems one more star. Its equatorial radius is sometimes Earth's times.

Neptune



Neptune is the outermost planet of gaseous giants and the first to be discovered in September 1846, thanks to mathematical predictions.

The interior of Neptune is rock fused with liquid water, methane and ammonia. The exterior is hydrogen, helium, water vapor and methane, which the blue color. Neptune is a little smaller than Uranus, but denser.

The strongest winds of any planet in the Solar System are those of Neptune. Many of them plan in the opposite direction of rotation.

The atmosphere of Neptune reaches temperatures close to 260 ° C below zero, the Sun is far away, 30 times more than Earth, and only looks like a very bright dot.

Its surface has few craters, but abundant cracks. It also has icy plains and geological features similar to volcanoes.

Pluto

Because it is so small, many scientists don't consider it a planet at all. In 1999, a group of scientists attempted to re-classify Pluto as a comet. On August 24, 2006, Pluto's status was officially changed from planet to dwarf planet.

ASTEROIDS

An asteroid is a rocky, carbonaceous or metallic body smaller than a planet and greater than a meteoroid that revolves around the Sun in an inner orbit to that of Neptune. Most orbit between Mars and Jupiter in the region of the solar system known as the asteroid belt. Asteroids are classified according to their location, composition or grouping.

Asteroids aren’t the only things that hit Earth. Each day, more than 100 tons of material from asteroids and comets falls toward Earth. Most of it is destroyed by friction as it passes through our atmosphere. If something does hit the ground, it is known as a meteorite.

While asteroid impacts were more common in the past, they aren’t as frequent today.

An asteroid impact some 65 million years ago contributed to the extinction of the dinosaurs. (It was one of several factors that affected all life on Earth at that time.)

Earth suffers an impact from an object the size of a football field about once every 2,000 years.

A car-sized meteoroid (a piece of asteroid) falls into Earth's atmosphere about once a year. The result is a beautiful fireball, but the meteoroid usually burns up before reaching the ground.

Asteroids are rich in precious metals and other metals, as well as water.
Some asteroids are actually blown-out comets. The ices are gone, and all that's left is the rocky material.

Some asteroids have moons of their own! Most asteroids orbit the Sun in the Asteroid Belt, which lies between Mars and Jupiter. Asteroids are also referred to as minor planets or planetoids.

COMETS

Comets are celestial bodies made up of ice, dust and rocks that orbit around the Sun following different elliptical, parabolic or hyperbolic trajectories. Comets, along with asteroids, planets and satellites, are part of the solar system.
Comets are generally discovered visually or photographically using telescopes or binoculars.

The nucleus of a comet is made of ice and can be as small as a few meters across to giant boulders a few kilometers across.

The closest point in a comet's orbit to the Sun is called "perihelion". The most distant point is called "aphelion"
As a comet gets closer to the Sun, it begins to experience heat. That causes some of its ices to sublimate (similar to dry ice sizzling in sunlight). If the ice is close to the comet's surface, it may form a small "jet" of material spewing out from the comet like a mini-geyser.

Material streams from comets and populates the comet's orbit. If Earth (or another planet) happens to move through that stream, those particles fall to Earth as meteor showers.

METEORITES

The word meteor means "sky phenomenon" and describes the light that occurs when a fragment of extraterrestrial matter enters the atmosphere. If the meteor does not completely disintegrate, each fragment that reaches the surface of the Earth is called a meteorite.

Some of the meteorites that have been studied seem to come from the Moon and others from Mars.

Millions of meteoroids travel through Earth's atmosphere each day.

When a meteor encounters our atmosphere and is vaporized, it leaves behind a trail. That "burning" meteoroid is called a meteor.

The appearance of a number of meteors occurring in the same part of the sky over a period of time is called "meteor shower".

Many meteor showers are associated with comets, which leave behind debris as they orbit through the solar system. Showers occur when Earth's orbit crosses the path of a comet's orbit.

Most meteorites are one of three types: stony, stony-iron, or iron. These compositions tell us where the meteoroid existed in its parent body. An iron or stony iron was close to the core of an asteroid, while a stony object was closer to the surface

CONCLUSIONS

This project was designed to learn about the Solar System.
We have learned a lot and will continue to learn about the sun, moon, and stars that go with the Solar System, and deeply explore the Earth.
Our Solar System is a microbe compared to the Universe. The Universe contains billions of stars and planets.
This is the end of my Solar System series, so I hope you enjoyed it and learned at least one fact that you can easily remember.

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