

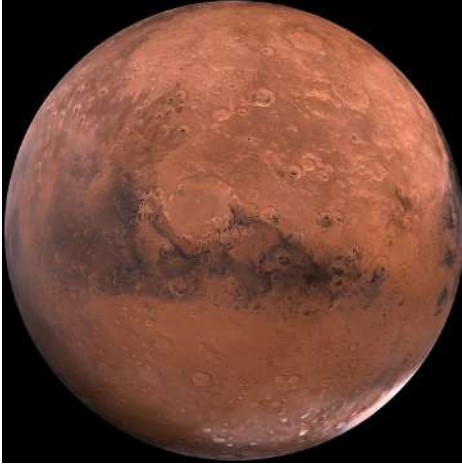
Our Solar system

- The sun was formed around 5.6 billion years ago and the planets formed about 4.6 billion years ago.
- It is located in Milky way galaxy. Only 15% of the stars have planetary system.
- Solar system consists of eight planets, 63 moons, comets and asteroids.
- The first four planets, closer to the sun, are called the inner planets.
- The inner planets, Mercury, Venus, Earth and Mars are solid planets. So, they are also called terrestrial planet.
- After Mars there lies the asteroid belt consists of irregularly shaped bodies of solid objects of different sizes.
- The last four planets, located after the asteroid belt, Jupiter, Saturn, Uranus and Neptune are Outer planets.
- The outer planets are larger in size and are gaseous mass. They have rings around them.

Terrestrial planets	Jovian planets
Mercury, Venus, Earth and Mars are called inner planets.	Jupiter, Saturn, Uranus, Neptune are called outer planets.
The first 4 planets from Sun or, the inner planets are rocky and are terrestrial planets.	The planets beyond the asteroid belt after Mars, or the gaseous outer planets are and called Jovian planets.
They are denser and smaller	They are larger and less dense.
Inner planets have thinner atmosphere because the solar wind blow away their atmospheric dust and gases.	The outer planets have thick atmosphere as the solar wind is not so intense.
Terrestrial planets are warmer because of closeness to Sun.	The gaseous planets are cooler because of distance from the Sun.
Terrestrial planets do not have rings.	Gaseous planets have rings.

- The four giant planets of the outer system are substantially more massive than the terrestrials.
- The two largest planets, Jupiter and Saturn, are gas giants, being composed mainly of hydrogen and helium.
- Uranus and Neptune, are ice giants, being composed mostly of substances with relatively high melting points compared with hydrogen and helium, called volatiles, such as water, ammonia and methane.
- All eight have nearly circular orbits that lie close to the plane of the Earth's orbit, called the ecliptic.
- The asteroid belt, which lies between the orbits of Mars and Jupiter, contains objects composed of rock, metal and ice.
- Beyond Neptune's orbit lie the Kuiper belt and scattered disc, which are populations of objects composed mostly of ice and rock.

- **Venus** is close in size to Earth and, like Earth, has a thick silicate mantle around an iron core. It is much drier than Earth, and its atmosphere is ninety times as dense. Venus has no natural satellites. It is the hottest planet, with surface temperatures over 400 °C (752 °F), mainly due to the amount of greenhouse gases in the atmosphere. The planet has no magnetic field that would prevent depletion of its substantial atmosphere, which suggests that its atmosphere is being replenished by volcanic eruptions.



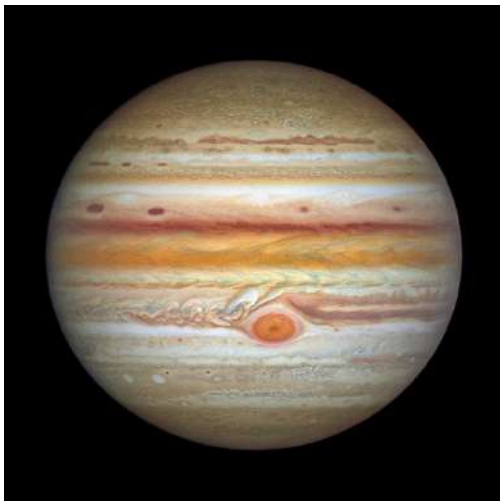
Earth is the largest and densest of the inner planets, the only one known to have current geological activity, and the only place where life is known to exist. Its liquid hydrosphere is unique among the terrestrial planets, and it is the only planet where plate tectonics has been observed. Earth's atmosphere is different from those of the other planets, having been altered by the presence of life to contain 21% free oxygen. The planetary magnetosphere shields the surface from solar and cosmic radiation, limiting atmospheric stripping and maintaining habitability. It has one natural satellite, the Moon, the only large satellite of a terrestrial planet in the Solar System.



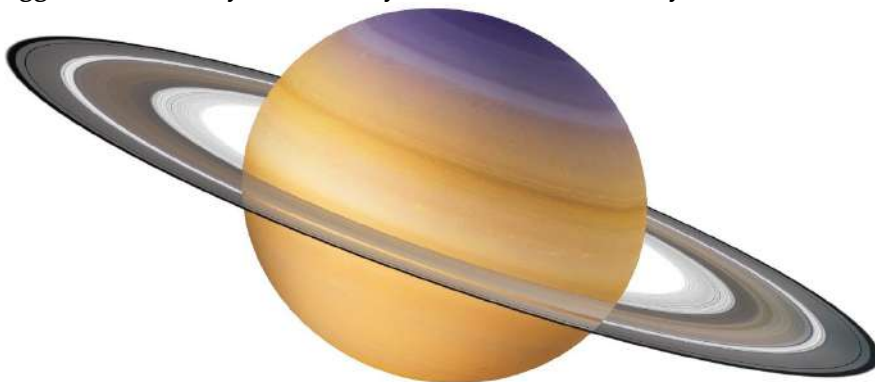
Mars is smaller than Earth and Venus. It has an atmosphere of mostly carbon dioxide. Its surface, peppered with volcanoes, such as Olympus Mons, and rift valleys, such as Valles Marineris. Its red colour comes from iron oxide (rust) in its soil. Mars has two tiny natural satellites (Deimos and Phobos).



Jupiter, is 2.5 times the mass of all the other planets put together. It is composed largely of hydrogen and helium. Jupiter's strong internal heat creates semi-permanent features in its atmosphere, such as cloud bands and the Great Red Spot. Jupiter has 80 known satellites. The four largest, Ganymede, Callisto, Io, and Europa, are called the Galilean moons: they show similarities to the terrestrial planets, such as volcanism and internal heating. Ganymede, the largest satellite in the Solar System, is larger than Mercury.

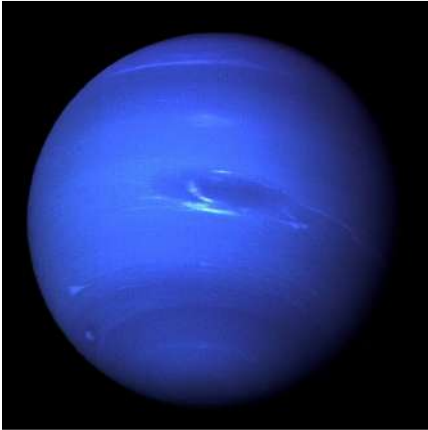


Saturn is distinguished by its extensive ring system, has several similarities to Jupiter, such as its atmospheric composition and magnetosphere. Saturn is the only planet of the Solar System that is less dense than water. The rings of Saturn are made up of small ice and rock particles. Saturn has 83 confirmed satellites composed largely of ice. Two of these, Titan and Enceladus, show signs of geological activity; they, as well as five other Saturnian moons (Iapetus, Rhea, Dione, Tethys, and Mimas), are large enough to be round. Titan, the second-largest moon in the Solar System, is bigger than Mercury and the only satellite in the Solar System to have a substantial atmosphere.



- **Uranus** has the lowest mass of the outer planets. Uniquely among the planets, it orbits the Sun on its

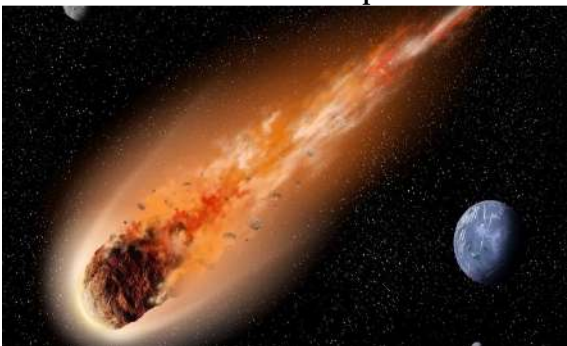
variation as each pole points toward and then away from the Sun. It has a much colder core than the other giant planets and radiates very little heat into space. As a consequence, it has the coldest planetary atmosphere in the Solar System. Uranus has 27 known satellites, the largest ones being Titania, Oberon, Umbriel, Ariel, and Miranda. Like the other giant planets, it also possesses a ring system and magnetosphere.



- **Neptune**, though slightly smaller than Uranus, is more massive and hence more dense. The largest satellite, Triton, is geologically active, with geysers of liquid nitrogen.



- A **comet** is an icy, small Solar System body that, when passing close to the Sun, warms and begins to release gases, a process that is called outgassing. This produces a visible atmosphere or coma, and sometimes also a tail. These phenomena are due to the effects of solar radiation and the solar wind acting upon the nucleus of the comet. Comet nuclei range from a few hundred meters to tens of kilometers across and are composed of loose collections of ice, dust, and small rocky particles.



- An **asteroid** is a minor planet of the inner Solar System. Asteroids are metallic or rocky bodies without atmospheres that are too small to be classified as planets, remnants left over from the early formation of the Solar System about 4.6 billion years ago.



- **Meteoroids** are significantly smaller than asteroids, and range in size from small grains to one-meter-wide objects. Objects smaller than this are classified as micrometeoroids or space dust. Most are fragments from comets or asteroids, whereas others are collision impact debris ejected from bodies such as the Moon or Mars.

Formation of moon

- Moon is the only natural satellite of Earth.
- It is an outcome of a giant impact, described as 'The Big Splat'.
- A body of the size equal or more than of Mars collided with Earth when Earth was in primary stage of creation.
- The collision blasted out materials from Earth which orbit around it and condensed into a solid satellite.
- This portion of blasted material then continued to orbit the earth and eventually formed into the present moon about 4.44 billion years ago.

