

Introduction

Our Solar System consists of the Sun and everything in orbit around it. As well as the nine planets that revolve around the Sun, many other bodies, including moons, comets and asteroids also inhabit the Solar System.



The Sun Our Sun came into being 4.6 billion years ago. It is the dominant presence in the Solar System and the source of heat and light that maintains life on Earth.

It formed in a cloud of dust called a nebula, which eventually became hot enough for fusion reactions to take place. The atoms that fused together formed an early Sun that grew by attracting more matter towards it.

The Sun consists of gases, mainly hydrogen and helium. The amounts change as the Sun burns one gas to create the other.

The Sun is kept in equilibrium by its own opposing forces of gravity and energy. Eventually, the Sun's supply of hydrogen will expire. The core will contract, but the Sun itself will expand, possibly engulfing the Earth.

Don't worry! Scientists estimate that this event won't happen for another 5 billion years.

Mercury The innermost planet in the Solar System, Mercury experiences extreme surface temperatures. One side is always facing the Sun, the other is always in shade. It is a dry, barren and rocky world with a very thin atmosphere unlikely to be capable of sustaining life.

Venus The surface of Venus is hot enough to melt most metals. The planet rotates on its axis in a clockwise direction, a trait it shares only with Uranus. Venus is so hot because it is very close to the Sun and also because it traps powerful solar radiation in its atmosphere in an exaggerated version of our own Greenhouse Effect.

Earth As far as we can tell, the Earth is the only planet supporting life in the Solar System. Its position in relation to the Sun helps to make this possible, avoiding the extreme temperatures that characterise the other planets.

The Earth formed when condensed particles released by the explosion that created the Sun collided and stuck together. As the planet grew, its surface was littered with volcanoes and craters. Water settled as the surface eventually cooled and now our atmosphere protects us like a blanket, screening solar radiation and providing us with the air we need to breathe.

The Earth has a metal core, a partly liquid mantle and a solid rocky crust. The crust is divided into plates that are constantly moving, sometimes against each other, forming mountain ranges or causing earthquakes.

Mars The atmosphere on Mars is too thin to support life on the surface, though many believe that there was once water on the planet and that life may exist deep inside its rocky crust.

The planet was struck by large meteorites in its past which have helped to create the modern Martian landscape of volcanoes and craters.

Asteroids Asteroids in our Solar System exist mainly in a large belt between Mars and Jupiter. They are rocky bodies typically a few miles across, thought to be remnants of an exploded planet, or simply chunks of rock without the power to create a planet at all.

Jupiter The largest planet in the Solar System and one of the fastest spinning, its dominant feature is the Great Red Spot, a powerful storm that has been raging in its atmosphere for over 300 years.

Saturn Another of the 'Gas Giants,' Saturn is famed for its system of rings, themselves consisting of thousands of smaller ringlets held in position by gravity. It also has a large collection of moons – more than 20 have so far been confirmed.

Uranus Discovered by 1781 by accident, it had previously been thought of as a star. It is the third largest planet in the Solar System and has a blue colouration caused by the methane in its atmosphere.

Neptune Its huge distance from the Sun means that Neptune's temperatures are brutally cold – in the region of -220°C . It also has the fastest winds in the Solar System, reaching 2000kmph.

Pluto The most recently discovered of our planets, Pluto was announced to the world in 1930. Its moon, Charon, is so similar in size to Pluto itself that many observers describe them as a double planet.