The Solar System is the name given to all of the **planets, moons, comets, asteroids, minor planets, dust** and **gases** that **orbit** our **Sun**. It can be found inside a **galaxy** called The Milky Way.

**The Sun** is enormous and makes up most of our Solar System. It has a powerful **gravitational pull** that attracts all of the other objects in the Solar System, pulling them towards it. These objects are moving rapidly and try to pull away, but they can’t because the pull of gravity is too great. The result is that these objects spend **eternity orbiting** around the Sun.

In this section, you will learn about...

1. About the objects in the Solar System.
3. About the Asteroid Belt, Kuiper Belt and Oort Cloud.
The Earth is the biggest planet in the inner solar system. It is roughly spherical in shape and has a diameter of 7,926 miles. 70% of Earth is covered in water and it supports a population of about 7 billion people.

The Earth also spins on its own invisible axis (a line which goes from the North to the South Pole). The earth spins completely round once every 24 hours. When a place is facing the Sun, it is daytime there. When it is in shade, it is nighttime.
The Phases of the Moon

Just like Earth, one half of the Moon is always lit by sunlight, whilst the other side is dark. As the Moon circles around the Earth, it appears to change shape as we see different amounts of it lit by sunlight. The different shapes that we can see are called the phases of the Moon.

<table>
<thead>
<tr>
<th>Phase</th>
<th>How the Moon is seen in the Northern Hemisphere</th>
<th>How the Moon is seen in the Southern Hemisphere</th>
</tr>
</thead>
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<tr>
<td>New</td>
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<td><img src="https://via.placeholder.com/50" alt="Image" /></td>
<td><img src="https://via.placeholder.com/50" alt="Image" /></td>
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<tr>
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<td><img src="https://via.placeholder.com/50" alt="Image" /></td>
<td><img src="https://via.placeholder.com/50" alt="Image" /></td>
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<tr>
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<td><img src="https://via.placeholder.com/50" alt="Image" /></td>
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<tr>
<td>Waning Gibbous</td>
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<td><img src="https://via.placeholder.com/50" alt="Image" /></td>
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<td><img src="https://via.placeholder.com/50" alt="Image" /></td>
</tr>
</tbody>
</table>

Did you know...?
The phases of the Moon are different for those in the Northern and Southern Hemispheres. This is because we’re “upside down” from each other and we see the Moon from different points.
Saturn’s Rings

Saturn is most well known for the bright rings around its equator. Although the rings appear solid, they are actually made of chunks of ice and rock. These range in size and can be as small as a speck of dust or as large as a house. It is believed that the rings are made from the remains of comets that have broken up in the past few million years. The rings may look thick but they are actually very thin (approximately 0.62 miles thick). Three main rings (an outer ring, a bright central ring and a transparent inner ring) can be seen through a telescope from Earth. On either side of these rings are fainter rings that have been discovered by space probes.
**Absolute zero**
The lowest temperature possible.

**Alien**
A being from another planet.

**Asteroid**
A small rocky body that orbits the Sun.

**Asteroid belt**
A disc in the Solar System (between Mars and Jupiter) that is occupied by asteroids and minor planets.

**Astronaut**
A person who travels into space.

**Astronomer**
A person who studies the stars, planets and other objects in space.

**Atmosphere**
The layer of gases around a planet, moon or star.

**Atom**
The smallest particle of an element.

**Axis**
An imaginary line through the centre of a planet or star.

**Big bang**
An explosive event that is believed to have created the universe.

**Billion**
One thousand million (1,000,000,000).

**Black Hole**
A collapsed star whose gravity is so strong that nothing can escape it.

**Canyon**
A deep gorge.

**Carbon**
One of the most common elements in the universe.

**Celestial object**
Objects seen in the sky, including planets, stars and galaxies.

**Cluster**
A group of something.

**Comet**
A small object (made from ice and rock dust) that melts and develops head and two tails when it travels too near to the Sun.

**Constellation**
A pattern of stars and the sky around them.

**Contracting**
Getting smaller, shrinking.

**Core**
The centre of something.

**Cosmologist**
A person who studies the evolution and future of the universe.

**Crater**
A hollow on the surface of a planet or moon.

**Crust**
The rocky surface of a planet or moon.

**Degree**
A unit of measuring angles.

**Density**
How compact something is.

**Diameter**
The distance from one side of a circular object to the other, passing through the centre.

**Double planet**
A pair of stars or planets that orbit around each other.

**Dune**
A mound or ridge or sand.

**Dust**
Tiny particles of earth and other matter.

**Dwarf planet**
An object that orbits the Sun but hasn’t cleared other objects in the area of its orbit.

**Earth**
The planet on which we live.

**Earthquake**
A sudden shaking of the ground.
Cross-section illustration of a NASA Space Shuttle.
The Earth from space.
A lunar rover vehicle.
1610
Galileo Galilei made the first telescopic observation of the night sky, discovering Jupiter's moons, lunar craters and the different phases of Venus.

1687
Sir Isaac Newton outlined his three laws of motion and described the motion of the Sun and planets. This work is thought to be some of the most important pieces of scientific work ever written.
The first asteroid, Ceres, was discovered by Giuseppe Piazzi.

The first clear telescopic photograph of The Moon was taken by John William Draper.
1927

The Society for Space Travel was formed in Germany. This group brought together many of the engineers who made important discoveries and contributions to space flight.

1930

American astronomer Clyde Tombaugh discovered Pluto.
The International Space Station (ISS) travels in Earth’s orbit. It is made up of smaller sections that were joined together in space. The main section was sent into space by a Russian rocket in 1998 and the ISS was completed in 2011.

The ISS is big enough to cover a football field and weighs about the same as 330 cars!

Governments around the world have made special agreements about how the ISS can be used.
Scientists carry out experiments there and NASA uses it to understand more about living and working in space. It is also used to test equipment that is needed for missions to The Moon and Mars.

The first crew to live on the ISS arrived in 2000 and people have lived on the space station ever since.

The ISS has two bathrooms, a gym and a large bay window. Six people can live there at a time. The large solar arrays on the sides help to generate electricity and there are also large robot arms which help move astronauts around outside.

The ISS completes 15.54 orbits of the Earth per day.
Questions:
1. What does ISS stand for?
2. When was the main section of the ISS sent into space?
3. When was the ISS complete?
4. How much does the ISS weigh?
5. What do scientists do on the ISS?
6. When did the first crew begin to live on the ISS?
7. Name some of the rooms in the ISS.
8. How many people can live on the ISS at the same time?
9. What do the robot arms do?
10. Write a sentence to describe what it would be like living on the ISS.
Thank you for looking at our preview resources. We hope that they are useful to you.

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Mark and Helen