6th – Geography - The Earth In The Solar System

The Earth is a unique planet in the solar system that has life.

Celestial bodies: The Sun, the Moon and all those objects shining in the night sky are called celestial bodies. These are also called heavenly bodies.

Stars: Some celestial bodies are very big and hot. They are made up of gases. They have their own heat and light which they emit in large amounts. These celestial bodies are called stars. The Sun is a star.

The twinkling spots of lights that we see in the sky at night are called stars. Stars are huge balls of very hot gaseous matter. Stars are formed from huge clouds of dust and gas.

Galaxy: Stars are found in very large clusters or groups. These clusters are called galaxies. A Galaxy is a huge system of billions of stars and clouds of dust and gases.

Universe: All the galaxies together make up the universe.

Milky Way Galaxy: Our galaxy is the Milky Way. It is also known as Aakash Ganga in Hindi. A white glowing path across the sky on a clear starry night is a Milky Way Galaxy. It is a cluster of millions of stars.

Constellations: Various patterns formed by the group of stars are called constellations. Since ancient times, hundreds of constyellations have been identified in the sky. Two more easily recognizable are Ursa Major and Orion. Ursa Major is also called big bear or Big Dipper because it takes the shape of large ladle. Orion is shaped like a hunter with a raised club. Saptrishi (seven stars) , Taurus (the bull) and Leo (the lion) are example of such constellations.

Pole star: The star that always remains in the same position (northern horizon) in the sky.

The Solar System: The Sun, eight planets, satellites and some other celestial bodies known as asteroids and meteoroids form the solar system. We often call it a solar family, with the sun as its head. Copernicus was the first scientist to put forward the model of Solar System with Sun at the centre and Earth, Moon and other planets revolving around the Sun.

Planet: Celestial bodies do not have their own heat and light. They are lit by the light of the stars. Such bodies are called planet. They revolve around the Sun. They are spherical in shape. There are eight planets in our solar system. All the eight planets of the solar system move around the sun in fixed paths. They are called orbits. In order of their distance from the Sun, they are:- **Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.** Every planet spins on its own axis. This called rotation. One rotation is referred to as a planet-day. Planets also move around the sun is called a revolution or planet-year. When the sun was formed, the colder outer parts of the disc broke up to form the four giant planets- Jupiter, Saturn, Uranus and Neptune. They are mainly made of gas and are cold they are called the outer planets or the **Jovian Planets**. In the warm inner part of the disc, rock and metal lumps came together to form the inner planets or the **terrestrial planets** Mercury, Venus, Earth and Mars. In august 2006, International Astronomical Union declared Pluto as dwarf Planet.

Sun: The Sun is in the centre of the solar system. It is huge and made up of extremely hot gases. It provides the pulling force that binds the solar system. The Sun is the ultimate source of heat and light for the solar system. The sun is almost 5 billion years old. The surface temperature of the sun is 5700°C. The sun's

ABHYAS Academy, Behind Pragat Shiv Mandir, Near Govt. College, Nishat Cinema Road, Ambala Cantt.
Ph No. +91-171-2631595, 9416541198, e-Mail: anusethi1968@yahoo.com Website: www. abhyasonline.in

diameter is 1,392,000 Km. It is 109 times bigger than the earth. The distance of the Moon from the Earth is less than half the diameter of the sun. However, there are stars which are hundreds of times bigger than the Sun. Sunlight reaches the Earth in about 8 minutes. The distance travelled by light in a year is called a light year. Light travels at a speed of 3,00,000 km per second.

Earth: The Earth is the third nearest planet to the Sun. In size, it is fifth largest planet. It is slightly flattened at the poles. That is why, its shape is described as a Geoids. Geoids mean an earth like shape. From the outer space, the earth appears blue because its two-third surface is covered by water. It is also called a blue planet. Conditions favorable to support life are probably found only on the earth. The rotation of the Earth causes day and night, the revolution of the Earth causes the seasons. The favourable conditions that facilitate life on the Earth are:

- Optimum distance from the Sun.
- An average surface temperature of 40 °C.
- Suitable seasons and weather condition.
- Adequate availability of liquid water.
- The presence of an atmosphere that protects living things from harmful ultra-violet radiations from the Sun.

Stars	Planets
They are self-luminous-they emit their own light and heat. They are very hot. They twinkle. They are very large. The Sun is an example of a star.	They are non-luminous –they only reflect the light of their star. Surface temperature depends on distance from the star. They do not twinkle they way stars do. They are smaller than stars. The Earth is an example of a planet.

Moon: Our earth has only one natural satellite that is the moon. The Moon moves around the earth in about 27 days. The Moon does not have favorable conditions for life. It has mountains, plains and depressions on its surface. These cast shadows on the moon's surface. It shines because it reflects the light of the Sun. it is about 384,400 Km. away from the Earth. There is no air on the Moon. The shape and position of the Moon as seen from the Earth, however, varies each day. We have a full moon night (purnima) about once a month. The full moon wanes, or gets smaller, till a fortnight from the full moon night; it cannot be seen from the Earth. This is called the new moon night (amavasya). On July 1969, Neil Armstrong became first human to land on Moon.

Asteroids: Apart from the stars, planets and satellites, there are numerous tiny bodies which also move around the Sun. These bodies are called asteroids. They are found between the orbits of stars and Jupiter.

Meteoroids: The small pieces of rocks which move around the sun are called Meteoroids. As the meteoroids enter the Earth's atmosphere, they begin to glow as a result of heating due to friction. The streaks of light the burning meteoroid produce as they fall to the Earth are called meteors or shooting star.

Satellite: is a celestial body that moves around the planets in the same way as the planets move around the Sun. **A human made satellite:** It is an artificial body. It is designed by scientist to gather information about the universe or for communication. Some of the Indian satellites in space are INSAT, IRS, EDUSAT etc.

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