



Key Vocabulary

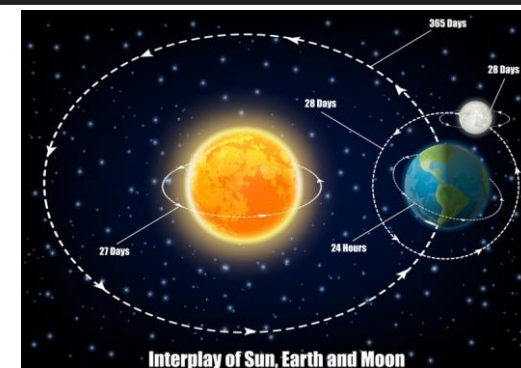
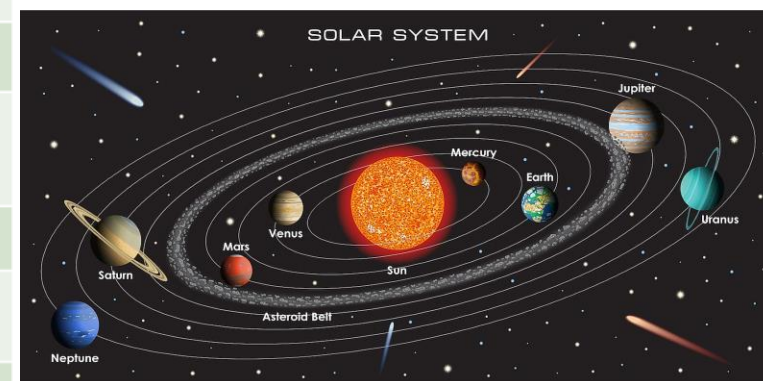
1		Sun- A huge star in our solar system that all planets orbit around.
2		Planets- A large round, or nearly round, object that orbits a star.
3		Star- A giant ball of gas held together by its own gravity.
4		Moon- A natural satellite that orbits around Earth and other planets.
5		Rotate/ Rotation- To turn or spin.
6		Axis- An imaginary line that a planet rotates around. Eg Earth's axis runs from the North to South Pole.
7		Orbit- To move in a regular, repeating curved path around another object.
8		Constellation- A group of visible stars that form a pattern when viewed from Earth.
9		Geocentric model- A belief people used to have that the Sun and other planets orbited around Earth.
10		Heliocentric model- The structure of the Solar System where planets orbit around the Sun.
11		Astronomer- Someone who studies or is an expert in astronomy (space science).

Sticky Knowledge

1	The order of the planets in the solar system, starting nearest the sun, are: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. Pluto used to come last but it has since been downgraded to a dwarf planet and is not included anymore.
2	Mercury, Venus, Earth and Mars are rocky planets. They are mostly made up of metal and rock. Jupiter, Saturn, Uranus and Neptune are mostly made of gases (helium and hydrogen) although they do have cores made up of rock and metal.
3	Earth rotates (spins) on its axis. It does a full rotation once in every 24 hours.
4	While the Earth is rotating, it is also orbiting (revolving) around the Sun. It takes a little more than 365 days for a full orbit.
5	Galileo's work on gravity allowed astronomers to understand how planets stayed in orbit.
6	The planets orbit the Sun at different speeds, meaning even though some are further away than Earth, they may have shorter years.
7	People used to believe that the Earth was at the centre of the universe and everything revolved around it, this is called the Geocentric model. The work of many astronomers (including Copernicus and Kepler) developed the Heliocentric model, that planets orbit around the Sun.
8	Daytime occurs when the side of Earth is facing towards the Sun. Night occurs when the side of Earth is facing away from the Sun.
9	At various times in a month, the Moon appears to be different shapes. This is because the Moon rotates around the Earth and the Sun lights up different parts of it.
10	Some people think that Stonehenge was used to study the movements of the Sun and Moon. The ancient Britons believed that the Sun and Moon had a special power over their lives. It is very likely that they held special ceremonies at Stonehenge on Midsummer's Day (the longest day of the year) and on Midwinter's Day (the shortest day of the year).
11	On 20 th July 1969, the first space craft, Apollo 11, landed in the Moon's 'Sea of Tranquility', a smooth plane that looked safer for landing.
12	The US won the 'Space Race' when American astronauts Neil Armstrong and Buzz Aldrin left the lunar module, named 'The Eagle', and were the first men to ever set foot on the moon. Neil Armstrong famously said, "One small step for man, one giant leap for mankind".
13	The Apollo 11 mission success would not have been possible without the women or black people who worked at NASA at a time when there were few employed there.
14	Elon Musk's Space X company made history in May when US astronauts Robert Behnken and Douglas Hurley travelled to the space station and back on a privately-funded rocket.
15	A few of the more famous constellations include: Orion, Ursa Major, Ursa Minor, Draco and the signs of the Zodiac.

Key Questions

1	How was the Solar System formed?
2	What are the names and order of the planets in the Solar System?
3	What evidence is there to suggest that planets and celestial bodies are spherical?
4	How do the sun, moon and Earth move in relation to each other?
5	Why do we experience seasons on Earth?
6	How long does it take the Earth and other planets to orbit the sun?
7	Why is there day and night on Earth?
8	Why do shadows change during the day?
9	Why does the moon appear to change shape?
10	What are other theories about our solar system has changed?





Prior Vocabulary

1	Seasons	There are 4 seasons during the year – Spring, summer, autumn and winter. The weather changes during these seasons. Summer is usually hot and dry, Winter is usually cold and sometimes snowy. Autumn and Spring are usually windy and rainy. During Spring the weather starts to warm up. It is also during this season that trees grow new leaves and plants grow. During Autumn the weather gets cooler. It is during this season plants die and leaves fall of trees.
2	Daylight hours	The period of light that occurs daily from sunrise to sunset
3	Day	A period of 24 hours (the length of time it takes for the Earth to rotate once). It is split into daylight and night hours.
4	Night	The period of darkness which occurs daily between sunset to sunrise
5	Moon	The natural satellite of the earth which is clearly visible at night. The light we see is reflected from the sun
6	Sun	The biggest star in our solar system that produces heat that we can feel on earth
7	Light source	An object that produces its own light (e.g. sun, fire)
8	Shadow	A dark areas or shape caused by the blockage of light
9	Light	A type of energy that makes it possible for us to see the world around us
10	Dark	Having little or no light

Prior Sticky Knowledge

1	The season names are Spring, Summer, Autumn and Winter. In the UK the Summer is the warmest season and winter is the coldest.
2	Spring occurs between March and May Summer occurs between June and August Autumn occurs between September and November Winter occurs between December and February
3	It is usually hot and sunny in the summer and cold and sometimes snowy in the winter. In the Spring and Autumn it can rain a lot.
4	The number of daylight hours change throughout the year. From December to June the number of sunlight hours get slightly longer each day. From June to December the number of daylight hours gets slightly shorter each day. The longest day (sunlight hours) is in June and the shortest day (sunlight hours) is in December.
5	The moon is always in the sky. The moon is not a natural source of light, the light is reflected from the sun.
6	The amount of the moon we see each day changes and goes through phases which repeat through the lunar cycle
7	Light travels in straight lines
8	The sun is the main source of light in earth

Future Learning

Gravity force, weight = mass x gravitational field strength (g), on Earth $g=10 \text{ N/kg}$, different on other planets and stars; gravity forces between Earth and Moon, and between Earth and Sun (qualitative only). (KS3)
Our Sun as a star, other stars in our galaxy, other galaxies. (KS3)
The seasons and the Earth's tilt, day length at different times of year, in different hemispheres. (KS3)
The light year as a unit of astronomical distance. (KS3)