Year 5 Science Medium Term Planning – Earth and Space

Autumn Term 2	N.C. EXPECTATIONS	Learning question	Associated Substantive Knowledge	Disciplinary Knowledge and skills	Key Vocabulary
1	I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system. I can describe the movement of the Moon relative to the Earth. I can describe the Sun, Earth, and Moon as approximately spherical bodies. I can use the idea of the	**L.Q Can I research what is in our solar system?**	Children know the solar system consists of the sun, eight planets, their moons, and other celestial bodies like dwarf planets, asteroids, and comets. Children know the planets orbit the sun with the inner planets (Mercury, Venus, Earth, and Mars) being rocky and the outer planets (Jupiter, Saturn, Uranus, and Neptune) being gas giants. Children know the Earth orbits the sun once every 365.25 days, which defines a year. The Moon orbits the Earth approximately every 27.3 days, which influences the phases of the Moon.	Research using secondary resources. Select the most appropriate ways to answer science questions using different types of scientific enquiry – Pattern seeking. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Using test results to make predictions to set up further comparative and fair tests. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.	Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), solar system, rotates, star, orbit, planets
2		**L.Q: Can I describe the movement of the Earth, and**	Children know that all planets in our solar system orbit the Sun.	Research using secondary resources.	Orbital period Gravitational pull.

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	Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	**other planets, relative to the Sun in the solar system?** Practical activity.	Children know the time it takes for a planet to complete one orbit around the sun is called its orbital period and that the orbital period increases with the distance from the sun. Children know that the sun's gravitational pull keeps the planets in their orbits.	As above	
3		**LQ: Can I describe the movement of the Moon relative to the Earth?**	Children know that the moon orbits the Earth, taking approximately 27.3 days to complete one orbit. Children know that the moon is tidally locked with the Earth, meaning it rotates on its axis once for every orbit around the Earth. This synchronous rotation causes the same side of the Moon to always face the Earth. Children know that as the moon orbits the Earth, the portion of the moon that is illuminated by the sun changes, creating the lunar phases. These phases include new moon, first quarter, full moon, and last quarter.	Research using secondary resources. As above	Tide Tidal Axis Illuminate Phases
4		**LQ: How does the Earth's rotation cause day and night, and why does the Sun appear to move across the sky?** Practical activity	Children know that the Earth rotates on its axis once approximately every 24 hours. This rotation causes different parts of the Earth to face the sun at different times, resulting in day and night. Children know that when a part of the Earth is facing the sun, it experiences daylight, and when it is turned away from the sun, it experiences night.	Research using secondary resources. As above	rotation

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		throughout the day,	Children know that as the Earth rotates from west to east, the sun appears to rise in the east and set in the west. This apparent movement is due to the Earth's rotation and not because the sun is moving around the Earth.		
5		LQ: Why are the Sun, Earth, and Moon considered approximately spherical, and how do we know this?	Children know that gravity pulls everything towards the centre, making big objects like the Sun, Earth, and Moon round because it's the easiest shape for gravity to make. Children know that we can see the Earth's round shadow on the Moon during a lunar eclipse, and pictures from space show us that the Sun, Earth, and Moon are round. Children know that the Earth spins, making it a bit wider in the middle, so it's not a perfect ball but close to it	Research using secondary resources. As above	spherical,
6		LQ: What is the relationship between the Earth's orbit and the different seasons we experience?	Children know that the Earth is tilted on its axis by about 23.5 degrees. This tilt means that different parts of the Earth get more or less sunlight at different times of the year. Children know that as the Earth orbits the sun, the tilt causes different parts of the Earth to lean towards or away from the sun. When your part of the Earth is tilted towards the sun, you get more direct sunlight and it's warmer, which means its summer. When it's tilted away, you get less direct sunlight and it's cooler, which means its winter. Children know that this tilt and orbit together cause the seasons to change. So, when it's summer in the Northern	Research using secondary resources. As above	Tilt tilted

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			Hemisphere, it's winter in the Southern Hemisphere, and vice versa.		

This subject involves mainly research using secondary resources. However, to engage children please include some of the following practical activities to ensure children achieve the objectives.

Modelling the Solar System

Activity: Create a scale model of the solar system using different sized balls or fruits to represent the planets.

Phases of the Moon

Activity: Use Oreo cookies to demonstrate the phases of the Moon.

Carefully twist apart the Oreo cookies so that one side has all the cream, and the other side is plain. Set aside the plain sides (or eat them!). Then scrape off the cream to show the different phases. Then arrange and label the phases.

Day and Night Simulation

Activity: Use a globe and a flashlight to simulate the Earth's rotation and how it causes day and night.

Shadow Investigation

Activity: Create a shadow clock by placing a stick in the ground and marking the position of the shadow at different times of the day.

Orbit of the Moon

Use a ball (Earth) and a smaller ball (Moon) attached to a string to demonstrate the Moon's orbit around the Earth.