Science – Year 5

Space

In what ways do celestial bodies interact?

NC objectives - **areas of study**	End point of area of study	Vocabulary		
		Basic	Adventurous	Technical
describe the movement of the Earth, and other planets, relative to the Sun in the solar system describe the movement of the Moon relative to the Earth describe the Sun, Earth and Moon as approximately spherical bodies use the idea of the Earth's rotation to explain day and night, and the apparent movement of the sun across the sky.	Pupils name the eight major planets int eh solar system. They have a good understanding of the movement of the Earth in relation to the Sun, along with the movement of other planets. They describe the movement of the moon in relation to the Earth. They describe the sun, moon and Earth as spherical along with the other planets. Using knowledge of the rotation of the Earth they explain night and day and the movement of the sun across the sky during the day. They make links to learning about light and seasons from previous Science learning and links to Maths with months and days in the year.	Earth, Sun, Moon, planets, Axis, Rotation, rotate, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, solar system,		spherical,

Knowledge

Substantive Knowledge

Retrieval- prior work as an Earth Scientist was in K21 when seasons are studied.
This learning builds upon the knowledge of forces from the prior y5 unit taught.
During this term pupils will have the opportunity to visit the planetarium that visits school.

Lesson 1
LO To know that the Sun, Earth and moon are defined as spherical.
Sun, Moon, Earth, spherical

- Know that a star is an exceptionally hot ball of gas, originally made from hydrogen and helium
- Know that the Sun is a star

Disciplinary Knowledge

Children work as Earth Scientists to explore and research what they know about the Earth, its movement around the sun and its place in the solar system, developing their knowledge of astronauts.

Similarities and differences
Children research planets of the solar system and make comparisons between them, their relative size, make up and key facts about them. They ask and answer questions about the Earth and other planets and research to find answers. Using information given to them they record data in different ways to demonstrate their understanding to a range of audiences using scientific diagrams and labels, classification keys, tables, and bar and line graphs. They compare the number of moons planets have and are able to explain

• Know that a planet (e.g Earth) is defined as a spherical celestial body that orbits a star and that has cleared the neighbourhood of its orbit of other objects, some of which crash into the planet and others that become moons of that planet. Reflect on the size of the universe and where we are located. • Lesson 2 • LO To know the movement of the Earth relative to the Sun in the Solar System. • **Sun, Earth, Solar System, orbit** • Know it was once thought that everything orbited the Earth, but that scientists like Copernicus and Galileo used telescopes and measurement to show that the Earth orbited the Sun • The Sun and the objects that orbit it are collectively known as our Solar System • Lesson 3 • LO To know the planets in the solar system orbit the Sun. • **Sun , planets (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), orbit** • • Know that there are eight major planets in our solar system: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune • Know that all the planets in the solar system orbit the Sun and that the further away they are from the Sun, the longer their orbit • Lesson 4 • LO To know the movement of the Moon relative to the Earth. • **Moon, Earth, rotate, orbit** • • Know that a satellite orbits a planet and that moons are natural satellites • Know that humans have sent man-made satellites into orbit that assist with telecommunication • Lesson 5 • LO To know how the Earth rotates to explain day and night. • **Sun, Moon, Earth, rotate,** •	what a moon is. Children create models of the solar system to aid them with their explanations. **Research** Using research of famous scientists, they apply this knowledge to support or refute ideas and arguments. Using models of the sun and Earth, they have the opportunity to explain night and day. They can see the sun as the star at the centre of our solar system and that it has eight planets. They have an understanding of the moon as a celestial body that orbits a planet.

- Know that the Earth spins around an imaginary line through its centre called an axis and that this axis is tilted relative to the Earth's orbit
- Know that night and day are the result of the Earth rotating on its axis
- Know that the tilt of the Earth towards and away from the Sun's light as the Earth orbits the Sun leads to the seasons as during winter the light is spread over a wider area (see diagram below)
- Know that the Moon orbits the Earth roughly every 28 days
- Know that as the Moon orbits the Sun, different parts of it are lit up by the Sun, which is why we see a different shape lit up on the Moon as the lunar cycle progresses; these are called phases of the Moon
- Know that a solar eclipse occurs when the Moon is between the Sun and the Earth, casting a shadow on the Earth; a lunar eclipse occurs when the Earth is between the Sun and the Moon, casting a shadow on the Moon
- Lesson 6
- LO To know Katherine Johnson was an American scientist.
- **Scientist,**
- Know that Katherine Johnson was a scientist and mathematician from America
- She worked for NASA and her calculations and work were critical to the success of the first and subsequent manned space flights
- She was one of the first black women to attend an integrated university in her state, West Virginia, having been handpicked due to her ability

Trip to Leicester Space Centre for awe and wonder.
Planetarium visit into school for exploring the stars.

Concepts

Biology	Chemistry	Physics	

SKILLS

1. Compare	2. Explore	3. Identify	4. describe	5. classify
6. Question	7. observe	8. test	9. record	10. research

ASSESSMENT

KNOW MORE, REMEMBER MORE, DO MORE...

In this unit of learning, progress has been made when a learner knows more. This 'distance travelled' from the starting point is evidenced through them remembering more and doing more: in books, low stakes quizzes, retrieval, use of mind maps, answering the big question and being able to feel more confident about this unit.