



The Canons CE Primary School



Year 5 – Earth and Space

Prior Learning	In Year 5	Future Learning
In Year 1 children will be taught to: • talk about the changes to the weather across the seasons • talk about the changes to plants across the seasons • describe the four seasons • observe and describe the weather within the seasons and how the length of the days changes. (<i>Seasonal Changes</i>)	In Year 5 children will be taught to: • explain day and night, using the Earth's rotation and the movement of the Sun across the sky • identify and describe that a moon orbits a planet • describe the movement of the Moon relative to the Earth • describe the movement of the Earth, and other planets, relative to the Sun in the solar system • describe the Sun, Earth and Moon as approximately spherical bodies • name all of the planets.	
	Key Vocabulary	
	Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets, day, night, axis	



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Famous Scientists	Common Misconceptions	Possible Evidence to be Secure
• Aristarchus (310 – 230 B.C.) – the first person to figure out that the Earth travels around the Sun • Nicolas Copernicus (1473 – 1543) – had the idea that Earth revolves on its axis and the Earth and other planets orbit around the Sun • Galileo Galilei (1564 – 1642) – discovered four of Jupiter's moons. In 1609 was the first person to make a study of the skies with a telescope. • Aristotle • Edwin Hubble (1889 – 1953) – in 1924 Hubble showed that nebulae (fuzzy light patches in the sky) were distant galaxies. In 1929 he found the speed of galaxy moves away from the Earth depends on its distance from the Earth. If a galaxy is four times as far away as another, it is moving four times as fast. This is Hubble's law. • William Huggins – showed that stars are made up of the same elements that exist on Earth • Cecilia Payne-Gaposchkin (1900-79) – in the 1920s she proved that stars are made mostly of hydrogen • Arthur Eddington (1882- 1944) – the first to work out what the inside of a star was like • Professor Brian Cox (1968 – present) – contemporary physicist, presents many BBC programmes • Heidi Hammel (1960 – present) – astronomer • Margaret Hamilton • Neil Armstrong (NB possibly covered in Y1 History) • Helen Sharman • Tim Peake	Some children may think: • the Earth is flat • the Sun is a planet • the Sun rotates around the Earth • the Sun moves across the sky during the day • the Sun rises in the morning and sets in the evening • the Moon appears only at night • night is caused by the Moon getting in the way of the Sun or the Sun moving further away from the Earth.	Children can: • create a voice over for a video clip or animation • show, using diagrams, the movement of the Earth and Moon • explain the movement of the Earth and Moon • show using diagrams the rotation of the Earth and how this causes day and night • explain what causes day and night.



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Working Scientifically

National Curriculum Statutory Requirements

1. Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
2. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate.
3. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
4. Use test results to make predictions to set up further comparative and fair tests.
5. Report and present findings from enquiries, including conclusions, casual relationships and explanations of result, in oral and written forms such as displays and other presentations.
6. Identifying scientific evidence that has been used to support or refute ideas or arguments.

Highlighted = main focus during this topic

Teaching Ideas – Different Types of Scientific Enquiry

Comparative and Fair Testing	Identifying and Classifying	Observation Over Time	Pattern Seeking	Research
How does the length of daylight hours change in each season?	How could you organise all the objects in the solar system into groups? Can you observe and identify all the phases in the cycle of the Moon?	How does the position of the Sun and shadows change during the day?	Is there a pattern between the size of a planet and the time it takes to travel around the Sun?	How have our ideas about the solar system changed over time? What unusual objects did Jocelyn Bell Burnell discover?

Teaching Ideas – How Pupils Could Work Scientifically

Teaching Ideas – Possible Evidence to be Secure

(Bracketed Number = National Curriculum Statutory Requirement Link)

- Use secondary sources to help create a model e.g. role play or using balls to show the movement of the Earth around the Sun and the Moon around the Earth. (3, 5)
- Use secondary sources to help make a model to show why day and night occur. (3, 5)
- Make first-hand observations of how shadows caused by the Sun change through the day. (2)
- Make a sundial. (3)
- Research time zones. (6)
- Consider the views of scientists in the past and evidence used to deduce shapes and movements of the Earth, Moon and planets before space travel. (6)

Children can:

- use the model to explain how the Earth moves in relation to the Sun and the Moon moves in relation to the Earth (5)
- demonstrate and explain verbally how day and night occur (5)
- explain evidence gathered about the position of shadows in term of the movement of the Earth and show this using a model (5)
- explain how a sundial works (5)
- explain verbally, using a model, why we have time zones (5)
- describe the arguments and evidence used by scientists in the past. (6)