

## Year 5 Science Curriculum

Working scientifically links   Rubric/PCMD opp.   Key Vocabulary

### Space

**What's the big picture?** Living things depend on each other and their environment to survive - children to generate own questions for investigation *"I know how to ask simple scientific questions"*

**Prior learning:**

Observe changes across the four seasons. (Y1 - Seasonal changes)

Observe and describe weather associated with the seasons and how day length varies. (Y1 - Seasonal changes)

| National Curriculum Principles  | Objectives   | Knowledge and key Vocabulary   | Reading opportunities  | Technology |
|---|--|--|--|------------|
| Describe the movement of the Earth, and other planets, relative to the Sun, in the solar system | I know about and can explain the movement of the earth and other planets relative to the sun | <p>The sun is a star at the centre of our solar system. There are 8 planets that travel around the sun in fixed orbits. Earth takes 365<sub>1/4</sub> days to complete its orbit around the sun.</p> <p>Children can name the <b>planets</b> in order and dwarf planet Pluto</p> <p>Children to research - what is the solar system? What does it include?</p> <p>Create a <b>heliocentric</b> model - earth and planets <b>revolve</b> around the sun</p> <p><b>Use secondary sources to research heliocentric and geocentric theories.</b></p> | <p>The Skies Above My Eyes<br/>(Charlotte Guillain &amp; Yuval Zommer)</p> <p>George's Secret Key to the Universe<br/>(Lucy and Stephen Hawking with Christophe Galfard)</p> <p>The Way Back Home<br/>(Oliver Jeffers)</p> |            |
| Describe the movement of the moon relative to the earth   | I know about and explain the movement of the moon relative to the earth                      | The earth rotates on its axis every 24 hours. As earth rotates half faces the sun (day) and half faces away from the sun (night). As the earth rotates the sun appears to move across the sky. The moon orbits the Earth every 28 days.  |  |            |

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|   |   |   |  |  |
|---|---|---|--|--|
|   |   | <p>Observe how shadows change throughout the day</p> <p>Research time zones</p> <p>Look at the phases of the moon - waxing, waning, total eclipse, full moon, new moon, gibbous, crescent, half moon - research and present information - create a double page spread</p> |  |  |
| Describe the sun, earth, moon as approximately spherical bodies   | I can describe the sun, earth and moon using the term spherical | To know that the moon, earth and sun are roughly spherical  |  |  |
| Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky | I know and can demonstrate how night and day are created        | <p>Use a torch and globe/ball to show night and day and movement of the sun across the sky.</p> <p>Check time in different countries to show impact of movement of earth.</p>   |  |  |

### Famous scientists

Margaret Hamilton - computer scientist for the moon landings

Ptolemy and Copernicus - heliocentric vs geocentric

Stephen Hawking - black holes

Mae Jamison - first black woman in space

Tim Peake - first British ESA astronaut

Neil Armstrong - first man on the moon

Helen Sharman - first British Astronaut

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### Common misconceptions

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.

### Enquiry ideas

| <u>Comparative tests</u>                                     | <u>Identify and classify</u>  | <u>Observations over time</u>   | <u>Pattern seeking</u>  | <u>Research</u>  |
|--|---|---|---|--|
| How does the size of a meteor affect the size of the crater? | How could you organise the objects in the solar system into groups? | Can you observe and identify all the phases in the cycle of the moon? | is there a pattern between the size of a planet and the time it takes to travel around the Sun? | How do astronomers know what stars are made of?              |
|  |   |   |   | How have our ideas about the solar system changed over time? |