



## DOWN AMPNEY PRIMARY SCHOOL

### Term 4

### Unit Overview: UKS2 Science

### Earth and Space

<p><u>National Curriculum Objectives</u></p> <ul style="list-style-type: none"> <li>❖ Describe the movement of the Earth, and other planets, relative to the Sun in the solar system</li> <li>❖ Describe the movement of the Moon relative to the Earth</li> <li>❖ Describe the Sun, Earth and Moon as approximately spherical bodies</li> <li>❖ Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul>	<p><u>Substantive knowledge</u></p> <ul style="list-style-type: none"> <li>❖ Know that the Sun is a star. It is at the centre of our solar system.</li> <li>❖ There are 8 planets. These travel around the Sun in fixed orbits. Earth takes 365¼ days to complete its orbit around the Sun.</li> <li>❖ The Earth rotates (spins) on its axis every 24 hours. As Earth rotates half faces the Sun (day) and half is facing away from the Sun (night).</li> <li>❖ As the Earth rotates, the Sun appears to move across the sky.</li> <li>❖ The Moon orbits the Earth. It takes about 28 days to complete its orbit. The Sun, Earth and Moon are approximately spherical.</li> <li>❖ Time zones across the globe are linked to the rotation of the Earth (Geography).</li> </ul>	<p><u>Vocabulary</u></p> <p>Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets, horizon, sphere, rotation, atmosphere, axis, phase</p> <p><u>Phonics / polysyllabic words</u></p> <p>astronomer astronomy crescent</p>
<p><u>Working Scientifically Skills</u></p> <ul style="list-style-type: none"> <li>❖ 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</li> <li>❖ identifying scientific evidence that has been used to support or refute ideas or arguments.</li> <li>❖ taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> </ul>	<p><u>Disciplinary knowledge</u></p> <ul style="list-style-type: none"> <li>❖ 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.</li> <li>❖ Use secondary sources to help make a model to show why day and night occur.</li> <li>❖ Make first-hand observations of how shadows caused by the Sun change through the day.</li> <li>❖ 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.</li> </ul>	<p><u>Reading support</u></p> <ul style="list-style-type: none"> <li>❖ Word mats</li> <li>❖ Scaffolded recording / choice of recording</li> <li>❖ Pre teaching of vocab</li> </ul> <p><u>Extension deeper thinking</u></p> <ul style="list-style-type: none"> <li>❖ Explore differences between planets</li> <li>❖ Big question - What if there were no Moon? What if the Earth moved closer to the Sun?</li> </ul>
<p><u>Prior learning</u></p> <p>In Early Years / KS1 children:</p> <ul style="list-style-type: none"> <li>❖ Explore the natural world around them. (Reception – Earth and space)</li> <li>❖ Describe what they see, hear and feel whilst outside. (Reception – Earth and space)</li> <li>❖ Observe changes across the four seasons. (Y1 - Seasonal changes)</li> <li>❖ Observe and describe weather associated with the seasons and how day length varies. (Y1 - Seasonal changes)</li> </ul>		<p><u>Key People</u></p> <p>Ptolemy Brahe Galileo Kepler Dr Karen Aplin, Space Scientist</p>



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<u>Future learning</u>	<u>Possible misconceptions</u>	<u>Christian Values</u>
<ul style="list-style-type: none"> <li>❖ Gravity force, weight = mass x gravitational field strength (g), on Earth <math>g=10 \text{ N/kg}</math>, different on other planets and stars; gravity forces between Earth and Moon, and between Earth and Sun (qualitative only). (KS3)</li> <li>❖ Our Sun as a star, other stars in our galaxy, other galaxies. (KS3)</li> <li>❖ The seasons and the Earth's tilt, day length at different times of year, in different hemispheres. (KS3)</li> <li>❖ The light year as a unit of astronomical distance. (KS3)</li> </ul>	<p>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.</p> <p><u>British Values</u></p> <ul style="list-style-type: none"> <li>❖ <u>Democracy</u> Take the views and opinions of others into account. Take turns and instructions from others.</li> <li>❖ <u>The rule of law</u> Understand the importance of safety rules when working scientifically make choices when planning an investigation as others may have different points of view as to where to start.</li> <li>❖ <u>Tolerance</u> Scientific discoveries have come from other cultures and religious beliefs often compete with scientific understanding.</li> <li>❖ <u>Mutual respect</u> Work as a team, discuss findings and Offer support and advice to others.</li> </ul>	<p><u>Courage</u></p> <ul style="list-style-type: none"> <li>❖ Ask our own questions to support our own understanding of the world and understand that sharing ideas, data, and results (for further testing and development by others) is a key principle of the scientific method.</li> </ul> <p><u>Respect</u></p> <ul style="list-style-type: none"> <li>❖ Supporting other's ideas, even if they differ to our own.</li> <li>❖ Explore and celebrate research and developments that take place in many different cultures, both past and present.</li> <li>❖ Explore how scientific discoveries have shaped the beliefs, cultures and politics of the modern world.</li> </ul> <p><u>Trust</u></p> <p>Celebrate everyone's unique ideas and working together collaboratively.</p>