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| Year Group | 5       |
| Term       | Spring  |
| Subject    | Science |

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| Topic             | Space                                                                     |
| Curriculum Intent | To describe the planets of our solar system and understand how they move. |

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| Key Vocabulary | Earth, Sun, Moon, sphere, circle, evidence, flat, round, Star, sun, planet, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Orbit or rotate, Geocentric, Heliocentric, Galileo, Copernicu, Ptolemy, Aristotle, Earth's rotation, Axis, Eclipse |
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| Skills | planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary, reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms, identifying scientific evidence that has been used to support or refute ideas or arguments. |
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| Knowledge | <ul style="list-style-type: none"> <li>To know the Earth, sun and moon are spherical</li> <li>To name and describe features of the planets in our solar system</li> <li>To explain how planets move in our solar system.</li> <li>To explain day and night and the apparent movement of the sun across the sky.</li> <li>To explain the Lunar cycle and phases of the moon.</li> </ul> |
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| Learning Objective                                                      | Lesson Activity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Support and challenge                                                                                                                                                                  | Key Skills                                                                                        |
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| 1. LO: I can explain why we know the Sun, Earth and Moon are spherical. | <p><b>Oracy Activity: Flat Earth Versus Spherical Earth</b> (Twinkl resource lesson 1 or could use Hamilton but more complicated)</p> <p>Group children and give <b>Shape Of The Earth Evidence Cards Activity Sheet</b> to discuss. Children read aloud a different evidence card to their group. Children discuss and sort the evidence between that which supports the idea that the Earth is flat and the evidence that supports the idea that the Earth is a sphere.</p> <p><u>BBC Bitesize Video – What is the sun?</u><br/> <a href="https://www.bbc.co.uk/bitesize/topics/zdrrd2p/articles/zqn7y4j">https://www.bbc.co.uk/bitesize/topics/zdrrd2p/articles/zqn7y4j</a></p> <p><b>Identify Evidence:</b> Children feedback from the group activity. Which idea has the most support? Why? What do you think based on the evidence?</p> | <p>SEN/LA - It will be helpful if children can recognise and identify 3D shapes.</p> <p>Also using a globe, ship &amp; lego man on earth (or laser torch) with a straight line for</p> | <p>Earth, Sun, Moon, sphere, circle, evidence, flat, round.</p> <p>Challenge: Plato, horizon,</p> |

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|                                                                                                                                           | <p><b>What Shape is the Earth?</b> Children complete the <b>Scientific Ideas and Evidence Activity Sheet – differentiated</b>.</p> <p><b>Sun and Moon:</b> <b>What about the shape of the Sun and the Moon?</b> Read through the explanation.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>eyesight .</p> <p>LA/SEN – will need to pre-read cards before activity.</p>                                                                                                                                                                              |                                                                                                                              |
| <p>2. LO: I can name and describe features of the planets in our solar system.</p> <p>c: I can order the planets in our solar system.</p> | <p><b>Twinkl lesson 2/Hamilton Trust lesson 3 – create a model orrery.</b></p> <p><b>Use Ideas About Our Solar System Activity Sheet</b> to record existing ideas about the solar system focusing on the following questions: <b>Can you name the planets? Do you know the order of the planets? Where have you got your ideas from?</b></p> <p>Could watch parts of BBC video “The planets”</p> <p>Watch BBC Bitesize : What is the Solar System?, The Rocky Planets and Gas Planets: <a href="https://www.bbc.co.uk/bitesize/topics/zdrrd2p/articles/ztsqj6f">https://www.bbc.co.uk/bitesize/topics/zdrrd2p/articles/ztsqj6f</a></p> <p><b>Meet The Planets – Solar System Speed Dating!</b> Give each pair one of the <b>Planetary Fact Cards</b>. Some will stay sitting and some will rotate around the room. Each pair has 5 minutes with each of the other planets to discuss and compare facts about the planets. Using a bell/instrument/online timer ensure that the sound indicates when the 5 minutes are up and they have to move. Children will recreate a scaled model of our solar system in groups – an orrery. Use website: <a href="https://www.exploratorium.edu/ronh/solar_system/">https://www.exploratorium.edu/ronh/solar_system/</a></p> | <p>It will be helpful if children have a basic understanding of what a planet is.</p> <p>LA/SEN – will need to preread cards before activity.</p> <p>Shiny Card –<br/>Mars = red,<br/>Earth = blue,<br/>Sat = yellow,<br/>Neptune=blue,<br/>Merc=black,</p> | <p>Star, sun, planet, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune.</p> <p>Solar System</p>                 |
| <p>3. LO: I can explain how planets move in our solar system.</p>                                                                         | <p><b>Twinkl lesson 3/Hamilton Trust session 3/Outstanding science “The Solar System”</b></p> <p>Use PowerPoint from Twinkl and do drama activity, whilst retelling the stories. Could use Outstanding Science sheet to complete.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                             | <p>Orbit or rotate</p> <p>Geocentric</p> <p>Heliocentric</p> <p>Galileo</p> <p>Copernicu</p> <p>Ptolemy</p> <p>Aristotle</p> |
| <p>4. LO:I can explain day and night and the apparent movement of the sun across the sky.</p>                                             | <p><b>Oracy lesson - Twinkl lesson 4</b></p> <p>Use PowerPoint</p> <p>This site has lots of interactive learning games:<br/><a href="https://www.childrensuniversity.manchester.ac.uk/learning-activities/science/the-earth-and-beyond/sun-moon-and-earth-orbits/">https://www.childrensuniversity.manchester.ac.uk/learning-activities/science/the-earth-and-beyond/sun-moon-and-earth-orbits/</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>Will need:<br/>globe<br/>Lego figure and<br/>model boat<br/>blu tac</p>                                                                                                                                                                                  | <p>Earth’s rotation</p> <p>Orbit</p> <p>Sun</p> <p>Axis</p> <p>Eclipse</p>                                                   |

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| LO: I can identify scientific evidence which does or does not provide evidence for an idea or argument. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                 |  |
| 5. I can explain the Lunar cycle and phases of the moon.                                                | <p><b>Use Outstanding Science sheet “Lunar Cycle”/ Hamilton Trust - activity lesson6</b></p> <p><b>Weblinks</b> <a href="https://vimeo.com/134281404">https://vimeo.com/134281404</a> - Close up of the moon;<br/> <a href="https://www.bbc.com/education/guides/zk8hvcw/revision/5-GCSESize&amp;gravitationalfieldstrength">https://www.bbc.com/education/guides/zk8hvcw/revision/5-GCSESize &amp; gravitational field strength</a>; <a href="http://www.bbc.co.uk/education/clips/zy4pr82">http://www.bbc.co.uk/education/clips/zy4pr82</a> - Moon’s orbit round Earth; <a href="http://www.bbc.co.uk/programmes/p00n6zhl">http://www.bbc.co.uk/programmes/p00n6zhl</a> - Stargazing: phases of the moon; <a href="https://www.youtube.com/watch?v=UIKmSQqp8wY">https://www.youtube.com/watch?v=UIKmSQqp8wY</a> – NASA- evolution of the moon; <a href="http://www.moonconnection.com/moon_phases_calendar.phtml">http://www.moonconnection.com/moon_phases_calendar.phtml</a> - Moon phases calendar;<br/> <a href="http://downloads.bbc.co.uk/schools/teachers/stargazinglive/stargazing_moon_guide.pdf">http://downloads.bbc.co.uk/schools/teachers/stargazinglive/stargazing_moon_guide.pdf</a> – Stargazing guide.</p> <p>Chn to recreate a lunar month simulation (as in video clip) and get chn to explain why, scientifically, the appearance is changing. Get chn to match moon phases to the lunar cycle diagram while they look at the lunar month sheets for the names of each phase - can they match what is being seen as they move their moon around the Earth and create a diagram to show this? Examine the current month’s moon phases (Moon Connection link) and challenge/support chn to model lunar and solar eclipses.</p> | <p>In groups of 3 and using the 2 cloakrooms in the dark under supervision.<br/> X2 :<br/> Swivel chairs<br/> Torches with bright lights.<br/> Wooden sticks (can use DT sticks).<br/> Polystyrene spheres.</p> |  |
| 6. I can make a sundial and explain how it works                                                        | <p><b><u><a href="#">Use Outstanding Science sheet – Making a Sundial</a></u></b><br/> <b><u><a href="#">Or Hamilton Trust session 5 Sundial designers and time zones detectives</a></u></b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                 |  |