



# Medium Term Unit Planning

<p><b>Topic Name:</b> Science - Earth and Space</p>	
<p><b>Learning outcome:</b> The children will become space experts! They will understand the Earth's movement in space and apply this idea to help them to explain night and day and the movement of the Sun. They will also describe the movement of the Moon and will use evidence to prove that these three (the Earth, Sun and Moon) are spherical bodies. This will lead them onto creating their own investigation into night and day on the school playground.</p>	
<p><b>Hook:</b> The children will create their own information book, as a class, about the Earth for an alien who has just discovered it.</p>	<p><b>Topic Showcase (e.g. display, museum, performance, presentation):</b> The children will undertake their own class investigation into night and day by tracking the sun through shadows and proving that the Earth spins on its axis!</p>
<p><b>Oracy:</b> Lesson 1 (Hook) – Children will present their page of the information book to their table. Lesson 3 – Children will present/stand deliver their ways of remembering the movement of the Earth.</p>	<p><b>Key Vocabulary:</b> Earth, solar system, moon, spherical, sun, rotate, revolve, orbit, day, night, shadows, light, axis, star, planets, phases of the moon, crescent moon, new moon, full moon, waxing, waning, half-moon, spin, seasons, evidence, investigation, fair test.</p>
<p><b>Key Texts (whole class reading/end of the day book/Talk for Writing Texts etc.):</b></p> <ul style="list-style-type: none"> <li>• Helen Sharman – Britain's First Astronaut by Tamela Maciel.</li> <li>• Margaret Hamilton: 'They worried that the men might rebel. They didn't' by Zoe Corbyn.</li> <li>• Dorothy Vaughan Biography by Margot Lee Shetterly.</li> <li>• The Jamie Drake Equation by Christopher Edge.</li> </ul>	



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**Citizenship/Community Opportunities (Focus – change in attitude/increase knowledge and awareness/make a difference):**

*Children analysing evidence that the Earth is round and disproving flat Earth theorists.*

**Experiences/Visits/Visitors:**

Measuring shadows on the playground.

**Main subjects covered:**

Science

**Science threshold concepts:**

**Understand the Earth's movement in space**

This concept involves understanding what causes seasonal changes, day and night.

**Work scientifically**

This concept involves learning the methodologies of the discipline of science.

**Notes:**

This scheme of work will surround different beliefs about the Earth and the children will be using scientific findings to reach conclusions.

<b>Lesson title and learning Intention</b>	<b>Threshold concepts (success criteria)</b>	<b>Milestones (success criteria)</b>	<b>Lesson structure/differentiation</b>
1. To display information about Earth for another planet.	<b>Understand the Earth's movement in space</b> This concept involves understanding what causes	Describe the Sun, Earth and Moon as approximately spherical bodies.	The children are addressed by an alien and told that they have just discovered Earth and they want to know all about it. The



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	<p>seasonal changes, day and night.</p>	<p>Describe the movement on the Earth, and other planets, relative to the Sun in the solar system.</p>	<p>children are to come up with questions that they can enquire about for the alien. Explore the different ways, in science, that they can find answers to these. Using their enquiries, in groups, the children will create 1 A3 page about Earth for our information book. children are to create an information book/PowerPoint to inform the alien.</p>
<p>2. To describe the Sun, Earth and Moon as approximately spherical bodies</p>	<p><b>Understand the Earth's movement in space</b> This concept involves understanding what causes seasonal changes, day and night.</p> <p><b>Work scientifically</b></p>	<p>Describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>Use simple models to describe scientific ideas, identifying scientific evidence that has been</p>	<p>Children to sort through pieces of evidence demonstrating that the Earth is spherical (disappearing ship model, shadows on the moon, constellation pictures). They will contrast this with any claims/evidence that the Earth is flat, reaching the</p>



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	This concept involves learning the methodologies of the discipline of science.	used to support or refute ideas of arguments.	conclusion that it is indeed spherical. Children will then apply these to the Sun and Moon too. Children record the strongest piece of evidence that they are spherical bodies in their books to disprove any flat Earth theorists.
3. To describe the movement of the Earth, and other planets relative to the Sun in the solar system.	<b>Understand the Earth's movement in space</b> This concept involves understanding what causes seasonal changes, day and night.	Describe the movement on the Earth, and other planets, relative to the Sun in the solar system.	Children recap the different planets in the solar system, using the mnemonic and drama to help them. The children will be introduced to the Earth's rotation and revolution, re-enacting these processes with a partner. The children will then create their own way of remembering this e.g. a song.
4. To describe the movement of the	<b>Understand the Earth's movement in space</b>	To describe the movement of the Moon relative to the Earth.	The children will begin by thinking about when they can see the Moon – what



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<p>Moon relative to the Earth.</p>	<p>This concept involves understanding what causes seasonal changes, day and night.</p>		<p>do they know about it? The children will learn about the Moon, its orbiting and rotation. Discuss what orbits the Earth and the children use drama to model how the Earth, Sun and Moon move. Introduce the children to the phases of the Moon, using Oreos to show this! The children will then draw the process of the Moon orbiting the Earth, label this and write an explanation.</p>
<p>5. To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	<p><b>Understand the Earth's movement in space</b> This concept involves understanding what causes seasonal changes, day and night.</p>	<p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	<p>The children will watch a video and then an animation showing day and night, sunset and sunrise. Show the children photos of the school at different times of the day, how have these changed? Introduce the notion of</p>



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			<p>shadows. The children will use a torch and a pencil in blu-tac to model how this works. Children will use a double page spread to explain night and day creatively.</p>
<p>6. To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	<p><b>Understand the Earth's movement in space</b>          This concept involves understanding what causes seasonal changes, day and night.</p> <p><b>Work scientifically</b>          This concept involves learning the methodologies of the discipline of science.</p>	<p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p> <p>Take measurements, using a range of scientific equipment with increasing accuracy and precision.</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification</p>	<p>Recap previous lesson and introduce the children to a shadow clock and sundial. The children will then focus on making a link between the direction and length of shadows throughout the day with the movement of the Earth on its axis. The children will place a rounders pole on the playground on a sunny day and they will measure the length of the shadow each hour (using a compass to determine direction). They will record this in their books</p>



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		<p>keys, tables, bar and line graphs, and models.</p> <p>Present findings in written form, displays and other presentations.</p>	<p>and use this to create a line graph showing how this changes throughout the day.</p>
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