

Science Long Term Plan KS2

Planning is in a 2 year rotation

Rotation 1 - Starting September 2019, 2021, 2023, 2025, 2027, 2029, 2031...

Term		Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Natural Science		Chemistry/ Physics	Physics	Biology		Biology	
Scientist		William Gilbert & Mary Somerville	Alessandro Volta & Claire J. Tomlin	Ivan Pavlov		Katherine Esau	
Year Group	Knowledge Organiser	<u>Forces &amp; Magnets</u>	<u>Electricity</u>	<u>Animals including humans</u>		<u>Plants</u>	
3 & 4	Unit Aim	Children can identify magnetic materials and explain different types of forces.	Children can build basic circuits, identify its parts and conductors and insulators.	Children can identify parts of a skeleton and some muscles.	Children can identify teeth and their functions.	Children can identify different parts of plants,	Children can describe the functions of different parts of plants.
	Knowledge	What are forces and what types of forces are there?  Identify, compare and group together a variety of everyday materials depending on whether they are attracted to a magnet.	Understand what electricity is and to identify common appliances that run on electricity.  Investigate common conductors and insulators.  Understand the function of a switch.	Identify that humans and some other animals have skeletons for support.  Identify that humans and some other animals have skeletons for protection.  Identify that humans and some other	Identify the different types of teeth in humans and their simple functions.  Identify good nutrition and its importance.  Investigate ways to reduce food waste.	Identify the different parts of a plant (KS1 Recap).	Identify and describe the functions of different parts of plants.

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		<p>Identify if there is a correlation between the size and strength of a magnet.</p> <p>Understand that some forces need contact between 2 objects, but magnetic forces can act at a distance.</p>	<p>Understand the dangers of electricity.</p>	<p>animals have muscles for support, protection and movement.</p>			
	<b>Skills</b>	<p>Explore a contact force.</p> <p>Describe magnets as having 2 poles/ Observe how magnets attract and repel each other and predict whether 2 magnets will attract or repel each other, depending on which poles are facing.</p>	<p>Construct a simple electrical circuit.</p> <p>Design and make an LED light up Christmas card.</p>	<p>Describe the simple functions of the basic parts of the digestive system in humans.</p>	<p>Construct and interpret food chains.</p>	<p>Explore the requirements of plants for life and growth and how they vary from plant to plant.</p> <p>Investigate the ways in which water is transported within plants.</p>	<p>Explore the part that flowers play in the life cycle of flowering plants: focus pollination.</p> <p>Explore the part that flowers play in the life cycle of flowering plants. Focus: Seed formation and seed dispersal.</p>

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	<b>Working Scientifically</b>	<ul style="list-style-type: none"> <li>• Asking relevant questions and using different types of scientific enquiries to answer them.</li> <li>• Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</li> <li>• Gather, record, classify and present data in a variety of ways to help in answering questions.</li> <li>• Identify differences, similarities or changes related to simple scientific ideas and processes.</li> <li>• Use straightforward scientific evidence to answer questions or to support their findings.</li> <li>• Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</li> <li>• Set up simple practical enquiries, comparative and fair tests.</li> <li>• Ask simple questions, make predictions, carry out simple tests, use results to draw simple conclusions.</li> <li>• Present findings from enquiries, such as causal relationships, in written and oral forms.</li> <li>• Plan a different range of scientific enquiry, including recognising and controlling variables.</li> <li>• Identify similarities and differences, classifying and presenting data in a variety of ways.</li> <li>• Research different food groups and how they keep us healthy.</li> </ul>					
<b>Natural Science</b>		<b>Physics</b>		<b>Physics</b>	<b>Chemistry/ Physics</b>	<b>Biology</b>	
<b>Scientist</b>		Issac Newton & Neil deGrasse Tyson		Nicola Tesla	Isaac Newton, Galileo & Tim Peake	Barbara Casadei	
<b>5 &amp; 6</b>	<b>Knowledge Organiser</b>	<u>Light</u>		<u>Electricity</u>	<u>Earth and Space</u>	<u>Animals including humans</u>	
	<i>Unit Aim</i>	<i>Children can explain how light passes/is blocked by certain objects and why.</i>	<i>Children know how light travels and why we can see objects.</i>	<i>Children can build a more complex circuit, identifying its parts and their functions.</i>	<i>Children can explain the movements of the moon, and the planets relative to other bodies in the Solar System.</i>	<i>Children can identify parts of the circulatory system and their functions.</i>	<i>Children can describe how our bodies change due to puberty and other factors.</i>

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	<b>Knowledge</b>	<p>Understand that darkness is the absence of light and that light is reflected from surfaces (LKS2 Recap).</p> <p>Understand the difference between opaque, transparent and translucent.</p>	<p>Understand we see things because light bounces/reflects off of objects to our eyes.</p> <p>Reinforce light travels in straight lines &amp; objects are seen because they give out or reflect light to our eyes.</p>	<p>To understand the basics of electricity.</p>	<p>Understand the movement of the Moon Relative to Earth.</p>	<p>Understand the idea of age and changes because of age and choices.</p> <p>Understand what makes up our blood and how water is transferred around the body.</p> <p>Measure and compare the energy content of foods.</p>	<p>Understand and recognise the impact of exercise.</p>
	<b>Skills</b>	<p>Research the life and work of Sir Isaac Newton.</p> <p>Investigate and understand refraction.</p>	<p>Recognise that light appears to travel in straight lines.</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the object casting them.</p>	<p>Identify symbols in a circuit, to represent a simple circuit as a diagram.</p> <p>Observe and explain the effects of volts in a circuit.</p>	<p>Generate questions and share knowledge.</p> <p>Describe the Earth, Sun &amp; Moon as approximately spherical bodies.</p> <p>Explore the distance and relative size of</p>	<p>Identify the main parts of the human circulatory system and explain the functions of the heart, blood vessels and blood.</p>	<p>Describe how the body changes during puberty.</p> <p>Recognise the impact of drugs and lifestyle on the body and how it functions.</p> <p>Describe the changes as humans develop in later life.</p>

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			Investigate why shadows change when the light source changes.	Identify additional electrical components and their symbols within circuit diagrams.  Represent and investigate a variety of components in a circuit.  Design an intruder alarm.	the Earth, Sun and Moon.  Describe the movement of the earth and other planets relative to the sun.  Use the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.		
	<b>Working Scientifically</b>	<ul style="list-style-type: none"> <li>● Report and present findings from enquiries and explain results. Display or present results and conclusions.</li> <li>● Identify the scientific evidence that has been used to support or refute my findings.</li> <li>● Conduct a simple investigation, record results in various ways. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. To record data and results or increasing complexity using scientific diagrams and labels, bar and line graphs.</li> <li>● Use recognised symbols to draw a simple circuit. Use scientific vocabulary to describe parts of a circuit.</li> <li>● Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>● Measuring, classifying, using knowledge to suggest answers.</li> </ul>					