



Science Long-term Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	<u>Movement and Nutrition</u>	<u>Forces and magnets</u>	<u>Rocks and Soils</u>	<u>Light and Shadows</u>	<u>Plant Reproduction</u>	<u>Does Hand grip affect strength?</u>
Year 4	<u>Digestion and Food</u>	<u>Electricity and circuits</u>	<u>States of Matter</u>	<u>Sounds and Vibrations</u>	<u>Classification and Changing Habitats</u>	<u>How does the flow of liquids compare?</u>
Year 5	<u>Mixture and separation</u>	<u>Properties and Change</u>	<u>Earth and Space</u>	<u>Lifecycles and Reproduction</u>	<u>Unbalanced Forces</u>	<u>Human Timelines & Does the size of an asteroid affect the size of its impact strength?</u>
Year 6	<u>Classifying big and small</u>	<u>Light and reflection</u>	<u>Evolution and Inheritance</u>	<u>Circuits, Batteries and Switches</u>	<u>Circulation and Health</u>	<u>Are some sunglasses safer than others?</u>

	Autumn 1	Autumn 2
Year 3	<p><u>Movement and Nutrition</u></p> <p>Studying the human skeleton, children identify key bones and compare them to other animals explaining the role within the body. Pupils explore how changes in muscles result in movement and the implications these discoveries have in the scientific development of prosthetic limbs. They study how energy is used by the body, what constitutes a balanced diet in humans and how research contributes to nutritionist expertise.</p>	<p><u>Forces and magnets</u></p> <p>Investigating the movement of vehicles on different surfaces, children learn about the impact of friction and compare uses and drawbacks. They broaden their experience in writing scientific methods and recording data as they investigate contact and non-contact forces. Pupils explore the properties of different magnets and use this to understand their uses</p>
Year 4	<p><u>Digestion and Food</u></p> <p>Using models, children describe the function of key organs in the digestive system. Pupils identify the types of human teeth to</p>	<p><u>Electricity and circuits</u></p> <p>Exploring appliances that use electricity in their setting, children learn how to work with electricity safely and build circuits. Pupils</p>



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	create their own model and investigate factors that impact our dental health. They compare human teeth to other animals' and consider this in the light of prior knowledge about predators, prey and food chains. Children take on the role of a naturalist investigating animal faeces for clues about diet, digestion and dentition.	investigate electrical conductors and insulators and explore the relationship between the number of bulbs and bulb brightness. Real scenarios and historical discoveries inform children about scientific progression and home safety.
Year 5	<p><u>Mixture and separation</u></p> <p>Pupils explore different types of mixtures and the different methods that can be used to separate them. They dissolve a range of substances, identify different solutions and investigate how temperature affects the time taken to dissolve. They design and create a water filter, sieve soil and evaporate solutions.</p>	<p><u>Properties and Change</u></p> <p>Broadening their experience of the properties of materials, children investigate hardness, transparency and conductivity and consider how these properties influence the uses of materials. They explore reversible changes, including dissolving and changes of state. Children compare these to irreversible changes, including rusting, burning and mixing vinegar and bicarbonate of soda.</p>
Year 6	<p><u>Classifying big and small</u></p> <p>Children broaden their knowledge of how vertebrates, invertebrates, plants and micro-organisms are grouped using shared characteristics. They discover how Carl Linnaeus developed the Linnaean and binomial systems for classifying and naming living things. Pupils use and produce classification keys to sort and identify organisms.</p>	<p><u>Light and reflection</u></p> <p>Proving that light travels in a straight line, children use this information to explain observations of reflection and shadows. They explore how our eyes allow us to see and how mirrors can be used in a variety of ways. Pupils investigate factors affecting the size of shadows and the laws of reflection. Children apply what they have learned about light by exploring real-life uses of mirrors.</p>
	Spring 1	Spring 2
Year 3	<p><u>Rocks and Soils</u></p> <p>Studying rocks and their properties, children learn how to classify rocks and identify how they were formed. They look at the work of palaeontologists to learn about fossil formation and use models to explore how fossils tell us about the past. Pupils</p>	<p><u>Light and Shadows</u></p> <p>Identifying examples of light sources, children learn that light is needed to see and how its absence causes darkness. Children investigate reflection and shadow formation, including how different factors affect shadows. They explore how shadows can be</p>



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	investigate the physical properties of rocks and link these to their particular uses. Pupils also explore soil formation, separate soil using a sedimentation jar and test soil drainage.	used to entertain in the arts and create shadow puppets to recount how different people work or experiment with light.
Year 4	<p><u>States of Matter</u></p> <p>Investigating the properties of solids, liquids and gases, children learn about the different states of matter. They explore changes of state using relatable examples and use this to explain changes to water through the water cycle. Pupils investigate the relationship between temperature and rate of evaporation while broadening their experience of working scientifically.</p>	<p><u>Sounds and Vibrations</u></p> <p>Exploring different ways of producing sounds, children learn about the relationship between vibrations and what they hear. They study dolphins and whales to develop their understanding of how sound travels between objects and investigate the role of insulation to protect our ears. Pupils explore how pitch and volume can be altered and make their own musical instruments to demonstrate these principles.</p>
Year 5	<p><u>Earth and Space</u></p> <p>Exploring some of the key celestial bodies in our Solar System, children learn their names and compare their movements. Pupils discover the relationship between the Earth's rotation and daylight, making models to represent their knowledge. They make their own sundials and consider how and why humans' ideas about the universe have changed over time.</p>	<p><u>Lifecycles and Reproduction</u></p> <p>Studying animal life cycles, children learn about the significance of reproduction for a species' survival. Pupils compare asexual and sexual reproduction in plants and grow cuttings to measure and plot root growth over time. Children compare the life cycles of mammals, birds, amphibians and insects identifying key differences. They analyse secondary data to investigate how the amphibian life cycle is affected by predators and climate change</p>
Year 6	<p><u>Evolution and Inheritance</u></p> <p>Studying patterns in humans and other species, children learn about characteristics that are inherited from parents and those that are environmental. Through the eyes of Darwin and Wallace, pupils understand how observations lead to theories and explore natural selection. By modelling the variation and natural selection of Darwin's finches, they begin to explain how species evolve over time and the role of fossil evidence that supports this theory</p>	<p><u>Circuits, Batteries and Switches</u></p> <p>Using their prior knowledge of electrical circuits, children learn to draw conventional circuit diagrams and use models to explain current, resistance and voltage. They compare different batteries and consider the effect on bulb brightness. Pupils apply their knowledge of switches and electrical circuits to design and produce their own practical devices.</p>



	Summer 1	Summer 2
Year 3	<p>Plant Reproduction</p> <p>Building on their prior knowledge of plant structures, children describe the functions of named parts and use evidence to explain their significance in plant development. Pupils investigate factors that may affect plant growth and how water is transported. They explore how seeds vary and create models to show seed dispersal methods.</p>	<p>Does hand span affect grip strength?</p> <p>Experimenting, analysing data and drawing conclusions allows children to explore the relationship between hand span and grip strength. They test different gloves to improve grip strength and applying their newfound knowledge to design friction gloves, fostering scientific inquiry and problem-solving skills.</p>
Year 4	<p>Classification and Changing Habitats</p> <p>Identifying different ways to group living things, children make classification keys to explore which grouping methods are most effective. Pupils study ways habitats change over time and understand that humans can have both positive and negative effects on their surroundings. They play the role of conservationists and design conservation pamphlets.</p>	<p>How does the flow of liquids compare?</p> <p>Revising the states of matter, children consider methods for measuring how liquids flow differently from each other. They plan and execute an enquiry, considering different ways of representing data to support a conclusion. Revisiting the digestive system, the children explore how the flow of different liquids should be considered when producing different medicines.</p>
Year 5	<p>Unbalanced Forces</p> <p>Building on their knowledge of forces, children explore gravity, air resistance and water resistance in more depth and consider the effect of these forces being unbalanced. They demonstrate key principles in the classroom and plan investigations to further their understanding of the effects of these forces. Pupils test their ideas using models and compete to build the most effective pulley system.</p>	<p>Human Timelines</p> <p>Studying human development and changes, children identify key stages and consider what data may help determine if a child is growing normally. They describe how puberty affects girls and boys and produce graphs to compare how gestation periods vary across different mammals, including humans.</p> <p>Does the size of an asteroid affect the size of its impact strength?</p> <p>Studying human development and changes, children identify key stages and consider what data may help determine if a child is growing normally. They describe how puberty affects girls and</p>



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		boys and produce graphs to compare how gestation periods vary across different mammals, including humans.
Year 6	Circulation and Health Studying the human circulatory system, children learn about the role of the heart, blood and blood vessels and use models to demonstrate their function. They explore how lifestyle choices affect our health and use secondary sources to advise patients. Pupils devise their own investigation to look at the relationship between exercise and heart rate, applying their knowledge of variables and then analysing secondary data to understand fitness better	Are some sunglasses safer than others? Exploring sun safety, children investigate the efficacy of different sunglasses. They devise enquiries to test light and UV transmission of the lenses to form a conclusion about which sunglasses are best, applying their knowledge of electrical circuits to provide a light source in the experiment. The children summarise their findings through presentations and advertisements.