



**SHOBNALL PRIMARY & NURSERY SCHOOL**  
**SCIENCE PROGRAMME OF STUDY**



## LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND** **BIOLOGY STRAND** **CHEMISTRY STRAND**

EYFS STATUTORY FRAMEWORK						
	AUTUMN TERM (1 <sup>st</sup> HALF)	AUTUMN TERM (2 <sup>nd</sup> HALF)	SPRING TERM (1 <sup>st</sup> HALF)	SPRING TERM (2 <sup>nd</sup> HALF)	SUMMER TERM (1 <sup>st</sup> HALF)	SUMMER TERM (2 <sup>nd</sup> HALF)
	IT'S GOOD TO BE ME		I CAN SING A RAINBOW		OUR HEROES	
	I CAN SING A RAINBOW		ALL ABOARD		THE GREAT OUTDOORS	
	I CAN SING A RAINBOW		ALL ABOARD		ALL CREATURES GREAT AND SMALL	
<b>NURSERY</b> (Understanding the World)	<p><b><u>Our Body</u></b> To know the names of some body parts and what we use them for.</p> <p>To learn about changes to their bodies since they were a baby.</p>		<p><b><u>Plants</u></b> To distinguish between a living and non-living thing.</p> <p>To explain where plants come from.</p> <p>To grow and care for a plant.</p> <p>To be able to explain the life cycle of a plant.</p> <p>To know what a plant needs to live.</p>		<p><b><u>Animals</u></b> To know that animals are living things.</p> <p>To describe an animal's habitat.</p> <p>To list some materials used to make a bird's nest.</p> <p>To name some animals that live on a farm.</p> <p>To give a possible reason why dinosaurs died off.</p>	
	<p>Make simple predictions about what they think might happen.</p> <p>Carry out simple investigations in a small group.</p> <p><b>ROCKET WORDS:</b> arm, leg, nose, hand, foot, ear, eye and mouth</p>		<p>Make simple predictions about what they think might happen.</p> <p>Carry out simple investigations in a small group.</p> <p><b>ROCKET WORDS:</b> plant, seed, soil, water, STEM, root, sunlight, garden.</p>		<p>Make simple predictions about what they think might happen.</p> <p>Carry out simple investigations in a small group.</p> <p><b>ROCKET WORDS:</b> bird, cow, sheep, goat, chicken, pig, bear and farm.</p>	

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	HOME SWEET HOME		SPARKLE AND SHINE		FOOD GLORIOUS FOOD	
	ON THE HIGH SEAS		A BUG'S LIFE		BON VOYAGE	
<b>RECEPTION</b>	<p><b><u>Materials</u></b> To know that things can change shape.</p> <p>To understand about melting.</p> <p>To know where knitted jumpers come from.</p> <p>To understand the usefulness of wool and what happens to it when it gets wet.</p> <p>To know about materials which act like mirrors.</p> <p>To know how water changes.</p>		<p><b><u>Forces</u></b> To know what happens if you pull or push something.</p> <p>To understand what happens when things float or sink.</p>		<p><b><u>Insects</u></b> To learn about where insects and vertebrates live.</p> <p>To learn about insects and invertebrates.</p> <p>To learn more about insects and invertebrates.</p>	
	<p>Make simple predictions, observations and evaluations through investigations.</p> <p><b>ROCKET WORDS:</b> melt, wool, mirror, jumper, cold, freeze, ice, smooth</p>		<p>Make simple predictions, observations and evaluations through investigations.</p> <p><b>ROCKET WORDS:</b> push, pull, fast, slow, press, suck</p>		<p>Make simple predictions, observations and evaluations through investigations.</p> <p><b>ROCKET WORDS:</b> snail, worm, spider, honey, beetle, ladybird, fly</p>	
<b>EYFS to YEAR 1</b>	<p>Year 1 Subject Content EYFS Educational Programmes(Curriculum) Suggested EYFS Key Skills, Knowledge and Understanding (Curriculum)</p>		<p>Year 1 Subject Content EYFS Educational Programmes(Curriculum) Suggested EYFS Key Skills, Knowledge and Understanding (Curriculum)</p>		<p>Year 1 Subject Content EYFS Educational Programmes(Curriculum) Suggested EYFS Key Skills, Knowledge and Understanding (Curriculum)</p>	
	<p><b><u>Year 1 Subject Content</u></b></p> <p>Plants</p> <p>Animals including humans</p> <p>Everyday Materials</p>		<p>Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and</p>		<p>Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and</p>	

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	<p>Seasonal Changes</p>	<p>firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains.</p> <ul style="list-style-type: none"><li>• Make simple predictions about what they think might happen</li><li>• Carry out simple investigations in a small group</li><li>• Explain why something happened and use this to predict what might happen next/change</li><li>• Identify, compare, classify and group a variety of places, objects, materials and living things</li><li>• Talk about changes, including the seasons</li><li>• Talk about their immediate environment and compare it to other environments</li></ul>	<p>firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains.</p> <ul style="list-style-type: none"><li>• Make simple predictions about what they think might happen</li><li>• Carry out simple investigations in a small group</li><li>• Explain why something happened and use this to predict what might happen next/change</li><li>• Identify, compare, classify and group a variety of places, objects, materials and living things</li><li>• Talk about changes, including the seasons</li><li>• Talk about their immediate environment and compare it to other environments</li></ul>
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NATIONAL CURRICULUM						
AUTUMN TERM (1 <sup>st</sup> HALF)	AUTUMN TERM (2 <sup>nd</sup> HALF)	SPRING TERM (1 <sup>st</sup> HALF)	SPRING TERM (2 <sup>nd</sup> HALF)	SUMMER TERM (1 <sup>st</sup> HALF)	SUMMER TERM (2 <sup>nd</sup> HALF)	
<p><b>YEAR 1</b></p> <p>In Year 1, we study the national curriculum and Developing Experts to ensure that knowledge and skills build on what has been taught before and towards our curricular goals outlined above. Please refer to <b>Science programmes of study: key stages 1 and 2:</b></p> <ul style="list-style-type: none"> <li>• Key stage 1 – year 1 (pages 7 – 9)</li> <li>• Developing Experts Year 1 Curriculum Map</li> </ul>						
<p style="text-align: center;"><b><u>EVERYDAY MATERIALS</u></b></p> <p>To investigate materials</p> <p>To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</p> <p>Distinguish between an object and the material it is made from.</p> <p>Describe the simple physical properties of a variety of everyday materials</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p> <p>Compare and group together a variety of everyday materials on</p>	<p style="text-align: center;"><b><u>EVERYDAY MATERIALS</u></b> <b><u>The Three Little Pigs</u></b></p> <p>To investigate materials and apply knowledge</p> <p>To build a structure strong enough to withstand wind.</p> <p>To build a waterproof structure.</p> <p>To understand the properties of glass and its uses.</p> <p>To understand that materials are used to create a variety of furniture.</p> <p>To explore a variety of fabrics and understand their different properties.</p>	<p style="text-align: center;"><b><u>ANIMALS, INCLUDING HUMANS - All about me</u></b></p> <p>To understand animals and humans</p> <p>To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>To learn about eyes and sight</p> <p>To learn about ears and hearing</p> <p>To explore the tongue and taste</p> <p>To explore the sense of touch</p> <p>To discover how your nose smells</p>	<p style="text-align: center;"><b><u>ANIMALS, INCLUDING HUMANS – All about animals</u></b></p> <p>To understand animals and humans</p> <p>To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p>To learn about the differences Between amphibians, reptiles and fish</p> <p>To identify and name a variety of common animals that are</p>	<p style="text-align: center;"><b><u>SEASONAL CHANGES</u></b></p> <p>To understand seasonal changes</p> <p>To understand there are four seasons</p> <p>To understand the changes that take place in autumn</p> <p>To understand the changes that take place in winter</p> <p>To understand the changes that take place in spring</p> <p>To understand the changes that take place in summer</p> <p>To observe and describe weather associated with</p>	<p style="text-align: center;"><b><u>PLANTS</u></b></p> <p>To understand plants</p> <p>To become familiar with common names of flowers and plant structures including seeds</p> <p>To identify and describe the basic structure of a variety of common flowering plants, including trees</p> <p>To identify and name a variety of common wild and garden plants</p> <p>To identify and name a variety of deciduous and evergreen trees</p> <p>To understand how plants change over time</p> <p>To observe the growth of planted flowers</p>	



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	<p>the basis of their simple physical properties.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p>	<p>Explain the uses of materials and why they are suitable.</p>		<p>carnivores, herbivores and omnivores</p> <p>To explore the difference between wild animals and pets</p> <p>To explain the characteristics of an animal</p>	<p>the seasons and how day length varies</p>	<p>Become familiar with plant structures Keep records of how plants change over time</p>
<b>Working Scientifically</b>	<p>During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> <li>• asking simple questions and recognising that they can be answered in different ways</li> <li>• observing closely, using simple equipment</li> <li>• performing simple tests</li> <li>• identifying and classifying</li> <li>• using their observations and ideas to suggest answers to questions</li> <li>• gathering and recording data to help in answering questions</li> </ul>					
<b>Rocket Words</b>	<p>material, fabric, wood, plastic, metal, object, glass, property, brick, elastic, opaque, transparent, dull, stiff, natural, manmade, factory, rubber, polyester, predict, float, sink, submerge, buoyant</p>	<p>solid, strong, brick, clay, wind, waterproof, absorbent, non-absorbent, roof, slate, transparent, opaque, suitable</p> <p>windowpane, window frame, fabric, furniture, cotton, mattress soft, wool, weather, jumper suitable, evaluate, material, properties, tile, garden</p>	<p>head, body, skeleton, limb, joint, brain, eyelash, eye, sight, pupil, sound, ear sign language, vibration, deafness, tongue, mouth, taste, flavour, sweet, touch, fingertips, skin, organ, brain smell, odour, nose, nostril, nose hair</p>	<p>fish, amphibian, reptile, mammal, bird, feather, warm-blooded, characteristic, backbone, hatchling, reptile, gills, scale, cold-blooded, herbivore, carnivore, omnivore, predator, canines, pet, wild, shelter, veterinary, natural, similarities, differences, compare, unsuitable, climate</p>	<p>season, spring, summer, autumn, winter, weather, protect, harvest, frost, sleet, temperature, compare, changes, grow, chick, warm, sun protection, temperature, heatwave, rainfall, measuring, record, results, graph</p>	<p>seed, plant, tree, soil, predict, stem, petal, leaf, root, flower, environment, weed, daisy, dandelion, wild, deciduous, evergreen, seasons, branch, bush, supermarket, fruit, vegetable, farm, tractor</p>
<b>YEAR 2</b>	<p>In Year 2, we study the national curriculum and Developing Experts to ensure that knowledge and skills build on what has been taught before and towards our curricular goals outlined above. Please refer to <b>Science programmes of study: key stages 1 and 2:</b></p> <ul style="list-style-type: none"> <li>• Key stage 1 – year 2 (<i>pages 10 – 12</i>)</li> <li>• Developing Experts Year 2 Curriculum Map</li> </ul>					

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	<p style="text-align: center;"><u>USES OF EVERYDAY MATERIALS</u></p>	<p style="text-align: center;"><u>ANIMALS, INCLUDING HUMANS – Health &amp; survival</u></p>	<p style="text-align: center;"><u>ANIMALS, INCLUDING HUMANS – Life Cycles</u></p>	<p style="text-align: center;"><u>LIVING THINGS AND THEIR HABITATS</u></p>	<p style="text-align: center;"><u>LIVING THINGS AND THEIR HABITATS – Habitats around the world</u></p>	<p style="text-align: center;"><u>PLANTS</u></p>
	<p>To investigate materials</p> <p>To identify different materials and their uses</p> <p>To understand how to select the right materials to build a bridge</p> <p>To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p> <p>To understand that materials can change their shape by twisting, bending, squashing or stretching</p> <p>To find out about Charles Macintosh and explore how materials are suitable for different purposes</p> <p>To discover which materials change shape when making a road with John McAdam</p>	<p>To understand animals and humans</p> <p>To describe the needs of animals for survival</p> <p>To describe the needs of humans, for survival</p> <p>To explore the importance of eating the right food</p> <p>To describe what a healthy, balanced diet looks like</p> <p>To investigate the impact of exercise on our bodies</p> <p>To investigate the importance of hygiene</p>	<p>To understand life cycles of different mammals</p> <p>To order the stages of the human life cycle</p> <p>To describe the stages of a human life cycle</p> <p>To identify the offspring and parent of an animal</p> <p>To explore the life cycle of a chicken</p> <p>To describe the life cycle of a butterfly</p> <p>To explore the life cycle of a frog</p>	<p>To investigate living things</p> <p>To explore and compare the differences between things that are living, dead, and things that have never been alive</p> <p>To identify and name a variety of plants and animals in a microhabitat</p> <p>Design a suitable microhabitat where living things could survive</p> <p>Find out what animals eat to survive in their habitats</p> <p>Understand a food chain</p> <p>Understand the journey food makes from the farm to the supermarket</p>	<p>To investigate habitats</p> <p>To learn about habitats</p> <p>To appreciate that environments are constantly changing</p> <p>To explore the rainforest and its problems</p> <p>To describe life in the Ocean</p> <p>To discover the Arctic and Antarctic habitat</p> <p>To create a model of a habitat</p>	<p>To understand plants</p> <p>To know the difference between seeds and bulbs</p> <p>To design an experiment to find out what plants need to grow</p> <p>To describe what plants need to grow and stay healthy</p> <p>To understand the requirements of plants for germination, growth and survival, as well as, the processes of reproduction and growth in plants</p> <p>To observe and record the growth of plants overtime</p> <p>To understand that plants adapt to suit their environment</p>
<p><b>Working Scientifically</b></p>	<p>During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> <li>• asking simple questions and recognising that they can be answered in different ways</li> <li>• observing closely, using simple equipment</li> <li>• performing simple tests</li> <li>• identifying and classifying</li> </ul>					

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	<ul style="list-style-type: none"> <li>using their observations and ideas to suggest answers to questions</li> <li>gathering and recording data to help in answering questions</li> </ul>					
<b>Rocket Words</b>	material, property, suitable, object, brick, bridge, triangle, obstacle, structure, construction, stretchy, elastic, floppy, hinder, limit, bend, twist, squash, stretch, force, mackintosh, protective, fluorescent, safety, waterproof, merchant, bound, highway, road	survival, shelter, nutrition, oxygen, essential, vital, non-essential, survive, grow, healthy, protein, carbohydrate, dairy, vitamins, calcium, fat, balanced diet, nutrients, fresh food, pre-cooked, processed food, exercise, strength, flexibility, balance, coordination, hygiene, prevent, germs, bacteria, virus	adult, foetus, womb, helpless, toddler develop, offspring, inherit, gene resemble, differences, reproduction hatchling, chick, bar chart, predict, caterpillar, transformation, larva, chrysalis, metamorphosis, frog, amphibian, frogspawn, tadpole, froglet	survive, shelter, antennae, suitable, condition, colony, insect, producer, consumer, herbivore, carnivore, omnivore, food chain, life cycle, nutrients, rot, caterpillar, automated, frozen food, forklift truck, refrigerated, lorry, canned	organism, environment, mate, rainforest, moisture, extinct, climate, endangered, biodiversity, deforestation, poaching, pollution, rainforest, plankton, ocean, ecosystem coral reef, trench, Antarctic, Arctic, caribou, narwhal tundra, earthworm, desert lizard, cactus, pond	seeds, bulbs, growth, plant, compare predict, investigate, control, experiment, method, photosynthesis, carbon dioxide, oxygen, glucose, energy, pollination life cycle, germination, reproduction, seedling, manure, crop, insulate, thrive, healthy, forest, desert, adapt, condition, survive
<b>YEAR 3</b>	<p>In Year 3, we study the national curriculum and Developing Experts to ensure that knowledge and skills build on what has been taught before and towards our curricular goals outlined above. Please refer to <b>Science programmes of study: key stages 1 and 2:</b></p> <ul style="list-style-type: none"> <li>Lower key stage 2 – year 3 (pages 16 – 19)</li> <li>Developing Experts Year 3 Curriculum Map</li> </ul>					
	<p style="text-align: center;"><b><u>ROCKS</u></b></p> <p>To understand rocks</p> <p>Explore the formation and properties of igneous rocks</p> <p>Explore the formation and properties of sedimentary and metamorphic rocks</p> <p>Weathering and the suitability of rocks for different purposes</p>	<p style="text-align: center;"><b><u>ANIMALS, INCLUDING HUMANS</u></b></p> <p>To understand animals and humans</p> <p>Explore the 5 key food groups</p> <p>Learn about the nutrition in the food we eat</p> <p>Learn about the different types of skeletons</p> <p>Learn about the human skeleton</p>	<p style="text-align: center;"><b><u>FORCES AND MAGNETS</u></b></p> <p>To understand movement, forces and magnets</p> <p>Explore contact and noncontact forces</p> <p>Compare how things move on different surfaces</p> <p>Explore different types of magnets</p>	<p style="text-align: center;"><b><u>LIGHT</u></b></p> <p>To understand light and seeing</p> <p>Identify the difference between light sources and non-light sources</p> <p>Explore the light that comes from the sun and how to stay safe</p> <p>Explore materials which are reflective</p>	<p style="text-align: center;"><b><u>PLANTS</u></b></p> <p>To understand plants</p> <p>Compare the effect of different factors on plant growth</p> <p>Identify and describe the functions of different parts of a flowering plant and how they are used in photosynthesis</p> <p>Investigate the way in which water is transported within plants</p>	<p style="text-align: center;"><b><u>SCIENTIFIC ENQUIRY</u></b></p> <p>How can a solar oven be made more effective: posing questions and writing predictions</p> <p>How can a solar oven be made more effective: recording and presenting results</p> <p>Cleaning coins: writing a method and carrying out a practical test</p> <p>Cleaning coins: writing a conclusion</p>



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	<p>Explore how water contributes to the weathering of rocks</p> <p>Understand how fossils are formed</p> <p>Explore different types of soil</p>	<p>Learn about animals and their skeletons</p> <p>Explore the role of muscles</p>	<p>Explore the properties of magnets and everyday objects that are magnetic</p> <p>Understand that magnetic forces can act at a distance</p> <p>Explore the everyday uses of magnets</p>	<p>Discover how shadows are formed</p> <p>Investigate how shadows change throughout the day</p> <p>Investigate how you can change the size of a shadow</p>	<p>Explore the part that flowers play in the life cycle of flowering plants</p> <p>Understand the pollination process and the ways in which seeds are dispersed</p> <p>Compare the effect of different factors on plant growth</p>	<p>Making a cake: fair testing, controls and variables</p> <p>Making a cake: scientific enquiry</p>
<b>Working Scientifically</b>	<p>During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> <li>• asking relevant questions and using different types of scientific enquiries to answer them</li> <li>• setting up simple practical enquiries, comparative and fair tests</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>• gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> <li>• recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>• reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>• using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>• identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>• using straightforward scientific evidence to answer questions or to support their findings.</li> </ul>					
<b>Rocket Words</b>	<p>igneous rocks, intrusive igneous rock, extrusive igneous rock, crystals, magma, sedimentary rock metamorphic rock limestone marble sandstone weathering chemical weathering physical weathering biological weathering acid rain, appearance, texture submerged, erosion, receding fossil, extinct, sediment embedded, amber, decompose,</p>	<p>nutrition carbohydrate protein vitamin mineral nutrition label portion energy balanced diet vertebrate invertebrate endoskeleton exoskeleton hydrostatic skeleton humerus ulna radius tibia fibular endoskeleton vertebrate skull rib cage spine muscle contract hamstrings biceps diaphragm</p>	<p>force, contact, force, non-contact forces air resistance, friction, motion, surface resistance, texture, tilt, magnet, attract repel, bar, magnet, horseshoe magnet magnetism, magnetic, field, iron steel non-contact, forces, magnetism, attract non-magnetic, materials, recycle compass, magnetic needle</p>	<p>light, source, natural artificial, reflect, vitamin D ultraviolet, rays, sunburn exposure, protection fluorescent, high visibility reflective, surface, materials shadow, opaque, sundial rays, blocks, position, cast opposite, direction, length size, shape, closer, further puppet</p>	<p>nutrients fertiliser nursery potassium stunted chlorophyll stomata xylem photosynthesis UV light xylem phloem absorb stomata transpiration anther stigma style filament reproduction pollination pollen nectar seed dispersal pollinator germination vulnerable anchor sapling formation</p>	<p>solar renewable energy scientific investigation prediction plausible record results data table graph acid alkali PH method practical conclusion evidence explanation compare enquiry baking measurements fair test control experiment variable conclusive scientific knowledge equipment diagram collated</p>

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	fragments, clay, soil, chalky, soil sandy soil		magnetic north direction orienteering			
<b>YEAR 4</b>	<p>In Year 4, we study the national curriculum and Developing Experts to ensure that knowledge and skills build on what has been taught before and towards our curricular goals outlined above. Please refer to <b>Science programmes of study: key stages 1 and 2:</b></p> <ul style="list-style-type: none"> <li>Lower key stage 2 – year 4 (pages 20 – 23)</li> <li>Developing Experts Year 4 Curriculum Map</li> </ul>					
	<p><b><u>ELECTRICITY</u></b></p> <p>To understand electrical circuits</p> <p>Explore electrical appliances and electrical safety</p> <p>Learn about electrical components in a series circuit</p> <p>Investigate electrical circuits</p> <p>Explore conductors and insulators</p> <p>Learn about electrical switches</p> <p>Investigate how electrical components can change within a circuit</p>	<p><b><u>ANIMALS, INCLUDING HUMANS</u></b></p> <p>To understand animals and humans</p> <p>Identify the organs in the digestive system</p> <p>Describe the functions of the main organs in the digestive system</p> <p>Identify the types of human teeth and their functions</p> <p>Investigate the effects of different liquids on the teeth</p> <p>Understand food chains</p> <p>Explore food webs</p>	<p><b><u>STATES OF MATTER</u></b></p> <p>To investigate materials</p> <p>Compare and group the 3 states of matter</p> <p>Explore how particles behave in solids, liquids, and gases</p> <p>Investigate melting points</p> <p>Explore freezing and boiling points</p> <p>Explore evaporation and condensation</p> <p>Understand the water cycle</p>	<p><b><u>SOUND</u></b></p> <p>To investigate sounds and hearing</p> <p>Identify how sounds are made</p> <p>Explore how vibrations from sounds travel through a medium to the ear</p> <p>Explore sound insulation</p> <p>Explore volume</p> <p>Explore pitch</p> <p>Explore sounds from near and from far</p>	<p><b><u>LIVING THINGS AND THEIR HABITATS</u></b></p> <p>To investigate living things and their habitats</p> <p>Explore different habitats</p> <p>Research a habitat</p> <p>Explore how animals can be classified</p> <p>Create a classification key</p> <p>Adaptations and classification within species</p> <p>Explore and classify pond plants</p>	<p><b><u>LIVING THINGS AND THEIR HABITATS - CONSERVATION</u></b></p> <p>To investigate living things and their habitats</p> <p>Describe ecosystems and how they are affected by changes in the seasons</p> <p>Understand human impact on the environment through deforestation</p> <p>Explore air pollution</p> <p>Understand water pollution</p> <p>Explore methods that can be used to conserve water</p> <p>Understand that humans can have a positive impact on nature</p>
<b>Working Scientifically</b>	<p>During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> <li>asking relevant questions and using different types of scientific enquiries to answer them</li> <li>setting up simple practical enquiries, comparative and fair tests</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> </ul>					

## LONG TERM OVERVIEW FOR SCIENCE

**KEY: PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**

	<ul style="list-style-type: none"> <li>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> <li>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>using straightforward scientific evidence to answer questions or to support their findings.</li> </ul>					
<b>Rocket Words</b>	electricity batteries mains electricity appliance socket circuit series circuit component cell voltage current power battery wire bulb conductor insulator metal copper rubber switch current control complete circuit incomplete circuit non-renewable energy renewable energy wind turbines solar panels hydropower	digestive system oesophagus stomach small intestine large intestine saliva peristalsis absorb liver gall bladder incisors canines molars jaw gum enamel plaque tooth decay cavity fluoride ecosystem producer consumer prey predator food web tundra hide interdependence threatened	matter solid liquid gas volume particle bond arranged cooled heated particle melting point temperature thermometer freezing reverse boiling sublimation deposition evaporation condensation absorb water vapour process water cycle precipitation surface runoff transpiration groundwater	vibration medium waves eardrum signals source energy particles echo vacuum materials reflect absorb insulate defenders' volume decibels decibel metre amplitude power pitch high pitch low pitch instruments orchestra energy particles travel sound source fade	habitat microhabitat conditions adapted camouflage coastal grassland environment climate exposure classify characteristics vertebrate invertebrate species sub-groups identify criteria classification keys organism adapted region features colouring blubber ecosystem oxygenised flowering plant non-flowering plant pond dipping	ecosystem Northern Hemisphere Southern Hemisphere migrate monsoon rainforest deforestation drought biodiversity recycling fossil fuels pollution greenhouse gases emissions climate change chemicals sewage contaminate pesticides water treatment plant conserve drought freshwater pure water butt endangered marine sanctuaries protect conservation areas recycling
<b>YEAR 5</b>	In Year 5, we study the national curriculum and Developing Experts to ensure that knowledge and skills build on what has been taught before and towards our curricular goals outlined above. Please refer to <b><u>Science programmes of study: key stages 1 and 2:</u></b> <ul style="list-style-type: none"> <li>Upper key stage 2 – year 5 (<i>pages 27 – 30</i>)</li> <li>Developing Experts Year 5 Curriculum Map</li> </ul>					
	<p style="text-align: center;"><b><u>PROPERTIES OF MATERIALS</u></b></p> To investigate materials  Exploring properties of materials  Explore thermal conductors and thermal insulators	<p style="text-align: center;"><b><u>CHANGE OF MATERIALS</u></b></p> To investigate materials  Use evaporation to recover the solute from a solution  Recognise and describe reversible changes	<p style="text-align: center;"><b><u>FORCES</u></b></p> To understand movement, forces and magnets  Explore gravity and the life and work of Isaac Newton	<p style="text-align: center;"><b><u>EARTH AND SPACE</u></b></p> To understand the Earth's movement in space  Explore the solar system and its planets  Understand the heliocentric model of the solar system	<p style="text-align: center;"><b><u>ANIMALS, INCLUDING HUMANS</u></b></p> To understand animals and humans  Identify the key stages of a mammal's life cycle  Explore the gestation periods	<p style="text-align: center;"><b><u>LIVING THINGS AND THEIR HABITATS</u></b></p> To understand living things and their habitats  Understand the life process of a plant  Understand the life cycles of mammals

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	<p>Explore the hardness of materials</p> <p>Discover materials that become soluble in water</p> <p>Investigate the solubility of materials</p> <p>Explore how mixtures could be separated by filtering, sieving, evaporating or magnets</p>	<p>Observe chemical reactions and describe how we know new materials are made</p> <p>Investigate rusting reactions</p> <p>Investigate burning reactions</p> <p>Investigate chemical reactions - acids and bicarbonate of soda</p>	<p>Examine the connection between air resistance and parachutes</p> <p>Explore factors which affect an object's ability to resist water</p> <p>Investigate the effects of friction on different surfaces</p> <p>Investigate mechanisms - levers and pulleys</p> <p>Investigate mechanisms - gears</p>	<p>Explain the Earth's movement in space</p> <p>Explain the Earth's rotation and night and day</p> <p>Explain the movement of the Moon</p> <p>Design a planet using knowledge gained</p>	<p>of mammals</p> <p>Learn about foetal development</p> <p>Investigate the hand span of different aged children</p> <p>Learn about the changes experienced during puberty</p> <p>Describe the changes humans may experience during adulthood and old age</p>	<p>Compare the life cycles of insects and amphibians</p> <p>Understand the life cycle of birds and reptiles</p> <p>Know about the life and work of Jane Goodall and David Attenborough</p> <p>Research and present the life cycle of a creature</p>
<b>Working Scientifically</b>	<p>During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> <li>planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> <li>taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li>using test results to make predictions to set up further comparative and fair tests</li> <li>reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a 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> </ul>					
<b>Rocket Words</b>	<p>conductive magnetic durable transparent versatile thermal conduction molecules degrees Celsius (°C) insulator hardness force iron steel stone dissolve solute insoluble soluble solvent solute solvent solution substance saturation pure substance mixture filtering sieving evaporation</p>	<p>pure substance solute solvent solution evaporate reversible mixture physical change melting evaporate irreversible chemical change compare effervescence product fair test variable control variable corrosion rusting combustion fuel oxygen extinguish smother reaction predict</p>	<p>Sir Isaac Newton gravity astronomy weight mass Galileo Galilei air resistance opposing streamlined parachute water resistance streamlined upthrust buoyant sink friction resistance lubricant Newton meter Newton lever load pivot fulcrum pulley mechanism gear</p>	<p>terrestrial planet gas giant planets Solar System spherical orbit astronomy heliocentric geocentric dwarf planet orbit axis poles season hemisphere orbit sundial time zone gnomon dial shadow moon phase waxing waning eclipse rocky planet gas planet moon orbit solar system</p>	<p>foetus dependent adolescent puberty reproduce gestation pregnant duration extreme breeding womb umbilical chord embryo trimester midwife growth spurt childhood motor skills milk teeth constant adolescence puberty hormones mood swing develop lifestyle keratin elasticity cataracts neurodegenerative</p>	<p>reproduction asexual fertilisation tuber genes pouch mammary glands placental mammal monotreme mammal marsupial metamorphosis caterpillar amphibian larva pupa egg fledgling egg tooth hatch embryo documentary naturalist primatologist endangered natural</p>

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		acid bicarbonate of soda carbon dioxide	mesh rack and pinion bevel gear			sciences living organism reproduction life cycle vertebrate warmblooded
<b>YEAR 6</b>	<p>In Year 6, we study the national curriculum and Developing Experts to ensure that knowledge and skills build on what has been taught before and towards our curricular goals outlined above. Please refer to <b>Science programmes of study: key stages 1 and 2:</b></p> <ul style="list-style-type: none"> <li>Upper key stage 2 – year 6 (<i>pages 31 – 34</i>)</li> <li>Developing Experts Year 6 Curriculum Map</li> </ul>					
	<p style="text-align: center;"><b><u>LIGHT</u></b></p> <p>To investigate light and seeing</p> <p>Explore how light travels</p> <p>Explore reflection</p> <p>Explore reflection and explain how it can be used to help us see</p> <p>Investigate how shadows can change</p> <p>Investigate how we can show why shadows have the same shape as the object that casts them</p> <p>Investigate how we see objects</p>	<p style="text-align: center;"><b><u>ELECTRICITY</u></b></p> <p>To understand electrical circuits</p> <p>Describe the parts of an electric circuit</p> <p>Explore voltage and its effect on an electrical circuit</p> <p>Apply knowledge to identify and correct problems in a circuit</p> <p>Investigate what affects the output of a circuit</p> <p>Build a set of traffic lights</p> <p>Apply knowledge of conductors and insulators</p>	<p style="text-align: center;"><b><u>EVOLUTION AND INHERITANCE</u></b></p> <p>To understand evolution and inheritance</p> <p>Understand how offspring vary and are not identical to their parents</p> <p>Learn about animal adaptations</p> <p>Learn about plant adaptations</p> <p>Explore what we can learn from fossils</p> <p>Explore the theory of evolution</p> <p>Explore human evolution</p>	<p style="text-align: center;"><b><u>LIVING THINGS AND THEIR HABITATS</u></b></p> <p>To understand plants</p> <p>Classify living organisms</p> <p>Understand the kingdoms of life</p> <p>Classify living things using the Linnaean system</p> <p>Identify the characteristics of different types of microorganisms</p> <p>Investigate asexual reproduction through spore dispersal</p> <p>Classify and describe a living organism</p>	<p style="text-align: center;"><b><u>ANIMALS, INCLUDING HUMANS</u></b></p> <p>To understand animals and humans</p> <p>Understand the function of the heart and its role in the circulatory system</p> <p>Identify and compare blood vessels</p> <p>Explore blood</p> <p>Learn how the body transports water and nutrients</p> <p>Investigate what affects your heart rate</p> <p>Learn about the impact of drugs and alcohol on the body</p>	<p style="text-align: center;"><b><u>LOOKING AFTER THE ENVIRONMENT</u></b></p> <p>To understand animals and humans</p> <p>Learn about climate change</p> <p>Explore ways to reduce how much rubbish is sent to landfill</p> <p>Explore ways to reduce energy consumption</p> <p>Explore what happens when fuels are burnt</p> <p>Explore the outcomes of COP26</p> <p>Compare data associated with the weather</p>



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<p><b>Working Scientifically</b></p>	<p>During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> <li>• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> <li>• taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>• recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li>• using test results to make predictions to set up further comparative and fair tests</li> <li>• reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a 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> </ul> <p><b>Developing Experts working scientifically in Year 6: Design an investigation to test hypothesis.</b></p> <p>Predict what will happen explaining why E.g. If my hypothesis is true, then I predict we will...</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Make the test fair (dependent and independent variables).</p> <p>Write an effective conclusion using PEEL.</p>					
<p><b>Rocket Words</b></p>	<p>light eye light source symbol scientific diagram reflected prediction fair test variable table periscope angle mirror line of sight utilise shadow block opaque transparent translucent plan sun shade real life problem rotate direction optical phenomena disperse spectrum refraction</p>	<p>symbol circuit circuit diagram battery wires electricity current voltage voltmeter brightness blown resistor variable resistor LED dimmer switch output variable fair test control test systematically synchronised traffic light signal sensor timer- based closed electric circuit indicating conductor insulator resistor</p>	<p>offspring characteristics inherit variation environmental adaptation habitat climate nutrition feature nutrients epiphytes toxic predators pollinate fossil Mary Anning Palaeontologist ichthyosaurus Jurassic coast Charles Darwin evolved extinct natural selection theory ancestor tools primate Homo sapien Neanderthal</p>	<p>classify microorganism fern living organism conifer kingdom mrs gren cell multicellular unicellular Carl Linnaeus classification Latin species domain microorganism bacteria fungi virus protozoa plant microscopic fungi mycelium ecosystem classify microorganism living organism habitat reproduction</p>	<p>circulatory system atrium ventricle vessel valves vessel artery vein capillary microscope blood plasma platelet white blood cell red blood cell absorb diffusion osmosis concentration nutrients diet exercise heart rate BPM pulse drug painkiller stimulant depressant hallucinogens</p>	<p>weather climate prevent global warming climate change recycle landfill rubbish biodegrade council net zero renewable nonrenewable greenhouse gases emissions industrial revolution fossil fuel coal combustion fuel COP sustainability conference pledge subsidy species sensitive natural disaster habitat vulnerable</p>

# LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND** **BIOLOGY STRAND** **CHEMISTRY STRAND**

## ENQUIRY SKILLS

### Asking questions

Asking questions that can be answered using a scientific enquiry.



### Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



### Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



### Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.



### Recording data

Using tables, drawings and other means to note observations and measurements.



### Interpreting and communicating results

Using information from the data to say what you found out.



### Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.

