

## Science Long Term Plan 2022 – 2023



EYFS	Curriculum Aims	Autumn 1a	Autumn 1b	Spring 2a	Spring 2b	Summer 3a	Summer 3b
	Communication and Language	<p>Children working at a <b>3-4 year olds</b> level will learn to: Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"</p> <p>Children working at <b>reception level</b> will learn to:</p> <ul style="list-style-type: none"> <li>• Learn new vocabulary. Ask questions to find out more and to check what has been said to them. Articulate their ideas and thoughts in well-formed sentences. Describe events in some detail. Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. Use new vocabulary in different contexts.</li> </ul> <p>Children who will <b>meet the ELG</b> will learn to:</p> <p>Make comments about what they have heard and ask questions to clarify their understanding.</p>					
	Personal, Social and Emotional Development	<p>Children working at a <b>3-4 year olds</b> level will learn to: Make healthy choices about food, drink, activity and tooth brushing.</p> <p>Children working at <b>reception level</b> will learn to:</p> <ul style="list-style-type: none"> <li>• Know and talk about the different factors that support their overall health and wellbeing: <ul style="list-style-type: none"> <li>-regular physical activity. Healthy eating, tooth brushing, sensible amounts of 'screen time', having a good sleep routine</li> </ul> </li> <li>being a safe pedestrian</li> </ul> <p>Children who will <b>meet the ELG</b> will learn to:</p> <p>Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.</p>					
	Understanding the World	<ul style="list-style-type: none"> <li>• Children working at a <b>3-4 year olds</b> level will learn to: Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. Begin to make sense of their own life-story and family's history.</li> <li>• Explore how things work. Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things.</li> <li>• Explore and talk about different forces they can feel.</li> </ul>					

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		<ul style="list-style-type: none"> <li>Children working at <b>reception level</b> will learn to: Explore the natural world around them.</li> <li>Describe what they see, hear and feel while they are outside. Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them.</li> </ul> <p>Children who will <b>meet the ELG</b> will learn to:</p> <ul style="list-style-type: none"> <li>Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</li> </ul>					
	<b>Topic</b>	<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
		Marvellous me	Sparkling celebrations	Winter adventure	Not all superheroes wear capes	Spring	Are we nearly there yet?

Year 1	Curriculum Aims	Autumn 1a	Autumn 1b	Spring 2a	Spring 2b	Summer 3a	Summer 3b
		<p>distinguish between an object and the material from which it is made?</p> <p>identify and name a variety of everyday materials?</p>	<p>Make predictions, ask questions carry out a test and discuss fair testing.</p>	<p>identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>identify and name a variety of common</p>	<p>identify, name, draw and label the basic parts of the human body</p>	<p>observe changes across the four seasons</p> <p>observe and describe weather associated with the seasons</p>	<p>identify and name a variety of common wild and garden plants</p> <p>identify and describe the basic structure of a variety of common</p>

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		<p>describe the simple physical properties of a variety of everyday materials?</p> <p>compare and group together a variety of everyday materials?</p>		<p>animals that are carnivores, herbivores and omnivores</p> <p>describe and compare the structure of a variety of common animals</p>		<p>Observe how the length of day varies</p>	<p>flowering plants, including trees</p>
	<p>Working scientifically</p> <p>ask simple questions and recognising that they can be answered in different ways?</p> <p>observe closely, using simple equipment?</p> <p>carry out simple tests?</p> <p>use observations and ideas to suggest answers to questions and gather and</p>	<p>Investigate man made and natural materials</p>	<p>Skittles in water experiment</p>	<p>Melting experiment</p>		<p>Taste and smell test.</p>	<p>Distinguish between common flowers and trees</p>

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	record data to help in answering questions?						
	<b>Topic</b>	<b>Materials Bob the Builder</b>	<b>Colour investigation</b>	<b>Animals including humans</b>	<b>Animals including humans</b>	<b>Senses</b>	<b>Living things - plants</b>

<b>Year 2</b>	<b>Curriculum Aims</b>	<b>Autumn 1a</b>	<b>Autumn 1b</b>	<b>Spring 2a</b>	<b>Spring 2b</b>	<b>Summer 3a</b>	<b>Summer 3b</b>
		Distinguish between an object and the material from which it is made  Identify and name a variety of everyday materials  describe the simple physical properties of a variety of everyday materials		find out about and describe the basic needs of animals, including humans, for survival  describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene			

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				identify that most living things live in habitats to which they are suited			
			identify and compare the suitability of a variety of everyday materials,	<p>notice that animals, including humans, have offspring which grow into adults</p> <p>find out about and describe the basic needs of animals and humans</p>		<p>explore and compare the differences between things that are living, dead, and things that have never been alive</p> <p>most living things live in habitats to which they are suited and describe how different habitats</p> <p>provide for the basic needs of different kinds of animals and plants,</p>	<p>observe and describe how seeds and bulbs grow into mature plants</p> <p>describe how plants need water, light and a suitable temperature to grow and stay healthy</p>

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						identify and name a variety of plants and animals in their habitats, including microhabitats  describe how animals obtain their food from plants and other animals,	
Working Scientifically  Asking simple questions and recognising that they can be answered in different way  Observing closely, using simple equipment  Performing simple tests  Identifying and classifying  Gathering and recording data to help in answering questions  Using their observations and ideas to suggest answers to question		find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene			describe how plants need water, light and a suitable temperature to grow and stay healthy	

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	Topic	Planets	materials	Animals including humans	Animals including humans	Plants and living things	Plants and living things
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Year 3	Curriculum Aims	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
		<p>know the life cycle of the plant</p> <p>know that seeds are dispersed in different ways</p>	<p>know how to find out about what is in different foods.</p> <p>investigate how much sugar there is in fizzy drinks</p> <p>recognise the similarities and differences in the food people eat around the world.</p> <p>To plan out and write an information text about food from around the world.</p>	<p>purpose of light.</p> <p>Understanding how reflective materials reflect light.</p> <p>Practically assess reflective surfaces and mirrors.</p>	<p>Understanding how friction is created by using a force.</p> <p>understand what materials are magnetic.</p>	<p>group different types of rocks</p> <p>learn about natural and human made rocks.</p> <p>explain how fossils are formed</p> <p>Exploring the achievements of Mary Anning in palaeontology.</p> <p>Understanding soil formation.</p> <p>Investigating soil permeation.</p>	

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	NC Curriculum aims						
	<p>Working scientifically Asking relevant questions and using different types of scientific enquiries to answer them The children answer questions posed by the teacher. Given a range of resources, the children decide for themselves how to gather evidence to answer the question The children make systematic and careful observations. The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher. They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking. Children answer their own and others' questions based on observations they have made. Children interpret their data to generate simple comparative statements based on their evidence.</p>	<p>To understand the functions of the skeleton  To be able to explain the various features of a skeleton  To relate images of bones, muscles and joints to diagrams of the body.</p>	<p>identify that animals, including humans, need the right types and amount of nutrition,  identify that humans and some other animals have skeletons and muscles for support, protection and movement</p>	<p>recognise that they need light in order to see things and that dark is the absence of light  notice that light is reflected from surfaces  recognise that light from the sun can be dangerous and that there are ways to protect their eyes  recognise that shadows are formed when the light from a light source is blocked by an opaque object  find patterns in the way that</p>	<p>compare how things move on different surfaces  notice that some forces need contact between 2 objects, but magnetic forces can act at a distance  observe how magnets attract or repel each  compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</p>	<p>compare and group together different kinds of rocks  describe in simple terms how fossils are formed  recognise that soils are made from rocks and organic matter</p>	



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				the size of shadows change	describe magnets as having 2 poles predict whether 2 magnets will attract or repel each other,		
	<b>Topic</b>	Plants and living things	Animals and humans	Light	Forces and magnets	Rocks	

Year 4	Curriculum Aims	Autumn 1a	Autumn 1b	Spring 2a	Spring 2b	Summer 3a	Summer 3b
	NC Curriculum aims	<ul style="list-style-type: none"> <li>identify common appliances that run on electricity</li> <li>construct a simple series electrical circuit,</li> <li>,</li> <li>recognise that a switch opens and closes a circuit</li> </ul> <p>recognise some common conductors and insulators</p>	<ul style="list-style-type: none"> <li>compare and group materials together, according to whether they are solids, liquids or gases</li> <li>observe that some materials change state when they are heated or cooled,</li> <li>identify the part played by evaporation</li> </ul>	<p>identify how sounds are made, recognise that vibrations from sounds travel through a medium to the ear</p> <ul style="list-style-type: none"> <li>find patterns between the pitch of a sound</li> <li>find patterns between the volume of a sound</li> </ul>	<ul style="list-style-type: none"> <li>recognise that living things can be grouped in a variety of ways</li> <li>explore and use classification keys</li> <li>recognise that environments can change and that this can sometimes pose</li> </ul>	<ul style="list-style-type: none"> <li>describe the simple functions of the basic parts of the digestive system</li> <li>identify the different types of teeth in humans and their simple functions</li> <li>construct and interpret a</li> </ul>	<p>name the different teeth in humans and explain what they do.</p> <p>Investigate the use of each type of tooth on foods.</p> <p>explore the basic functions of the human digestive system.</p>

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			and condensation in the water cycle		dangers to living things	variety of food chains,	<p>explain the human digestive system</p> <p>research animals compare omnivores, carnivores and herbivores.</p> <p>understand about food chains identifying producer, predators and prey</p>
	Working scientifically taking systematic and careful observations and, where appropriate,	identify whether or not a lamp will light	<ul style="list-style-type: none"> <li>observe that some materials</li> </ul>	recognise that sounds get fainter as the			Investigate the use of each

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	<p>taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>Setting up simple practical enquiries, comparative and fair tests</p> <p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>Using straightforward scientific evidence to answer questions or to support their findings</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>	in a simple series circuit	<p>change state when they are heated or cooled,</p> <p>identify the part played by evaporation and condensation in the water cycle</p>	distance from the sound source increase			<p>type of tooth on foods.</p> <p>explore the basic functions of the human digestive system.</p>
<b>Topic</b>		Electricity	States of Matter	Sound	Living things and their habitats	Animals including humans	Living things

Year 5	Curriculum Aims	Autumn 1a	Autumn 1b	Spring 2a	Spring 2b	Summer 3a	Summer 3b
	NC Curriculum aims	<ul style="list-style-type: none"> <li>describe the differences in the life</li> </ul>	describe the movement of the Earth, and	describe the life cycle of a human	Identify parts of a flower	To describe different forces that are	Compare and group together everyday

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		<p>cycles of a mammal, an amphibian, an insect and a bird</p> <ul style="list-style-type: none"> <li>describe the life process of reproduction in some plants and animals</li> </ul>	<p>other planets, relative to the Sun in the solar system</p> <p>describe the movement of the Moon relative to the Earth</p> <p>describe the Sun, Earth and Moon as approximately spherical bodies</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>describe the milestones of a baby</p> <p>explain the changes that happen during puberty to a girl</p> <p>To explain the changes that happen during puberty to a boy</p> <p>describe and understand what is meant by positive relationships</p>		<p>present on Earth</p> <p>explain how gravity works</p> <p>identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>recognise that some mechanisms allow a smaller force to have a greater effect</p> <p>understand the discoveries of important scientists.</p>	<p>materials on the basis of their properties</p> <p>some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>use knowledge of solids, liquids and gases to decide how mixtures might be separated</p> <p>give reasons, based on evidence, for the particular uses of everyday materials</p> <p>demonstrate that dissolving, mixing and changes of state are reversible changes</p>
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							and some are irreversible
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	<p>Working scientifically</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 argument</li> </ul>	Dissecting plants	Investigate movement of the sun on the playground			<p>Investigate how gravity / forces work by doing practical experiment</p> <p>Investigate how levers work</p>	Sugar and water experiment

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		Living things and their habitats	Earth and space	Animals including humans	Animals including humans	Forces	Properties and changes of materials

Year 6	Curriculum Aims	Autumn 1a	Autumn 1b	Spring 2a	Spring 2b	Summer 3a	Summer 3b
	<b>Working scientifically</b>  Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary  Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary  Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	recognise that light appears to travel in straight lines  investigate colour and texture effects in shadows  explore ways to split white light into a coloured spectrum  investigate the movement of light	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit  Compare and give reasons for variations in how components function	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago in the context of the evolution of	Identify and name the main parts of the human circulatory system  identify and name the main parts of the human circulatory system  recognise the impact of diet, exercise,	describe how living things are classified into broad groups according to common observable characteristics  give reasons for classifying plants and animals based on specific characteristics	

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	<p>Identifying scientific evidence that has been used to support or refute ideas or arguments</p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms</p>	<p>beams on a range of reflective surfaces</p> <p>investigate angles of reflection</p>		<p>plants and animals</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents in the context of inheritance</p> <p>Identify how adaptation may lead to evolution by examining the advantages and disadvantages of specific adaptations and the role of human intervention in</p>	<p>drugs and lifestyle on the way their bodies function</p> <ul style="list-style-type: none"> <li>describe the ways in which nutrients and water are transported within animals, including humans</li> </ul>		
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				the process of evolution			
	Topic	Light	Electricity	Evolution and inheritance	Animals including humans	Living things and their habitats.	

## Science links with other areas of the curriculum

**English** – Speaking and listening -presenting evidence and findings, explaining reasoning, writing up experiments

**Reading** – retrieval and understanding of information, accessing different text types and genres,

**Maths** – using data loggers / thermometers, creating, reading and interpreting graphs – statistics, understanding number and the four operations, rounding, estimating, reading scales

**Geography / History** – development of enquiry skills, scientists in the past and throughout time, looking at and understanding the weather

**PE** – how exercise affects the body, diet and nutrition

**RE** – looking at the different scientists and their cultures

**PSCHE** – decision making, looking after your body

**Art** – creativity and visualisation

**DT** – Critical thinking for design and structures