



Primary Science and Technology Developmental Framework

The Science and Technology Curriculum aims to foster a love of learning and engage students from a young age. Students will be able to make links between why and how the world works in science to making things work in technology. They will develop problem-solving skills and will be able to apply their learning to real life contexts, providing opportunities to reinforce and build on prior learning. Pupils will also be given the opportunity to deepen their understanding through other curriculum areas and relating learning to their personal experiences.

Our pupils will develop a sense of belonging and responsibility through having a better understanding of the world, and by applying learning to real-life problems and contexts. They will be able to access the world around them as independently and safely as possible due to having a better awareness of the risks and hazards within their world and an understanding of how their body works.

Integral to the delivery of the Science and Technology Curriculum is allowing students regular opportunities to ask questions, make predictions, plan investigations and evaluate their results. They will then build on these skills in technology, allowing for creativity and exploration. These skills will support students' understanding and promote independence outside the classroom.

Science and Technology is taught every week throughout the school year. Our curriculum follows a three year cycle, allowing opportunities for pupils to access a breadth of study. The curriculum is differentiated according to the different stages of development of our pupils. These are described by the terms 'Encountering', 'Developing' and 'Enhancing'. Pupils learning at the 'Enhancing' stage are likely to be based in our partnership classes and access mainstream lessons for this curriculum area.

Cycle One					
Autumn 1			Autumn 2		
Animals Including Humans- Differences			Forces and Magnets		
Encountering	Developing	Enhancing	Encountering	Developing	Enhancing
<ul style="list-style-type: none"> To be able to identify common animals. Pupils will be able to explore and investigate the bones of a skeleton—and recognise that they have bones in their bodies. Pupils will understand that all 	<ul style="list-style-type: none"> Identify and name variety animals - 5 groups Name animals that are carnivore/ herbivore/ omnivore Describe and compare variety of common animals 	<ul style="list-style-type: none"> To investigate the role of the human skeleton and individual bones To compare and identify animal skeletons 	<ul style="list-style-type: none"> To investigate and explore a magnet being used to attract different materials. 	<ul style="list-style-type: none"> Compare how things move on different surfaces • Notice that some forces need contact between two objects, but magnetic forces can act at a distance 	<ul style="list-style-type: none"> Describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing.

<p>animals need to eat.</p> <ul style="list-style-type: none">• Pupils will make a healthy sandwich with support.				<ul style="list-style-type: none">• To know and use the terms 'attract and repel'• To predict which materials may be magnetic and carry out investigations to test their ideas.• To record data and use this to inform their learning.• To communicate when they have learnt using simple sentences.	
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Spring 1			• Spring 2		
Rocks			Plants and Growth: Life Cycle of a Plant		
Encountering	Developing	Enhancing	Encountering	Developing	Enhancing
<ul style="list-style-type: none"> • Pupils will be able to investigate and explore different types of rocks and describe using symbols • Explore soil through touch • Pupils will be able to make their own fossils out of salt dough with adult support, developing understanding of how things can make a pattern after being squashed into a rock. 	<ul style="list-style-type: none"> • To observe, compare and group different rocks on the basis of their appearance and simple physical properties.. • To understanding the different parts of soil • To use drawings and diagrams to reflect their findings. 	<ul style="list-style-type: none"> • Describe how fossils are formed when things that have lived are trapped within rock 	<ul style="list-style-type: none"> • To investigate and explore different flowers. 	<ul style="list-style-type: none"> • To identify wild and garden plants • To label different parts of a flower and understand the function of each part. • To learn the life cycle of a plant. • To be able to communicate learning through drawings and labels • To predict the number of 	<ul style="list-style-type: none"> • To ask questions and make predictions about wildlife in our local area. To independently plan an investigation to test their ideas. • To independently record their findings in an appropriate manner and use this evidence to communicate their learning.

	<ul style="list-style-type: none"> • Begin to understand how fossils are formed by objects being trapped within rock. • Pupils will make their own fossils out of salt dough, understanding how things can get squashed into materials • Pupils will identify which objects are clearest when making fossils and why this might be. 			<p>wild flowers in a particular area, carry out an investigation and record data.</p> <ul style="list-style-type: none"> • To use their evidence to evaluate their findings. • Pupils will research which plants would be most welcoming for bees. • Pupils will design a wildlife garden that would be good for bees. 	
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				<ul style="list-style-type: none"> Pupils will plant the garden and monitor the number of insects using the garden over the coming term. 	
Summer 1			Summer 2		
Living Things and Their Habitats/ What we need to be alive			Everyday Materials- States of Matter		
Encountering	Developing	Enhancing	Encountering	Developing	Enhancing
<ul style="list-style-type: none"> Pupils will be able to investigate and explore living things. To use the term 'alive'. 	<ul style="list-style-type: none"> To identify Living, dead or never alive To learn what we need to be alive Pupils will be able to describe how animals 	<ul style="list-style-type: none"> Classification - insects 	<ul style="list-style-type: none"> Pupils will be able to investigate and explore different solids mixed together and investigate how they 	<ul style="list-style-type: none"> To identify the different properties of materials To investigate a suitable material to keep us dry on our picnic. 	<ul style="list-style-type: none"> To independently ask questions, plan investigations and collect data to test their ideas. To independently use the data to evaluate their learning. Pupils will learn to apply their knowledge of

	<p>obtain their food from plants and other animals</p> <ul style="list-style-type: none"> • Pupils will be able to identify different sources of food. Pupils will design a sandwich, taking into account different dietary habits eg vegetarian. • Pupils will make the sandwich and evaluate it against a set of criteria. • Pupils will learn to chop 		<p>can be separated.</p> <ul style="list-style-type: none"> • To explore and investigate solids changing state and explore what they can do following the change of state eg chocolate can be used to decorate biscuits. • Pupils will experiment with the effectiveness of different materials 	<ul style="list-style-type: none"> • To mix and separate solids • To understand that some solids can dissolve in water • To know that materials can be changed through melting and cooling • and consider the impact of this on our picnic food choices. • To investigate suitable materials for keeping something cool. • To understand that some 	<p>materials to their designs of a canopy, explaining why they have chosen a particular design.</p> <ul style="list-style-type: none"> • Pupils will be able to make their canopy using a selection of tools as independently as possible. • Pupils will evaluate their design against a set criteria.
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	fruit and mix in a fruit salad.		when out in the rain.	materials go through irreversible changes. <ul style="list-style-type: none">• To design a canopy for keeping dry under a picnic.• Pupils will make a miniature canopy for keeping dry using their designs.• Pupils will develop skills in cutting, shaping and joining when making their canopy.• Pupils will evaluate the	
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				<p>effectiveness of their canopy based on a given criteria.</p> <ul style="list-style-type: none">• Pupils will begin to be able to suggest improvements to their designs.	
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Cycle Two

Autumn 1

Autumn 2

Animals Including Humans- Reproduction, Changes and Nutrition

Sound and Light

Designing and Making a Musical Instrument

Encountering	Developing	Enhancing	Encountering	Developing	Enhancing
<ul style="list-style-type: none"> • Begin to name and identify common animals • Match pictures of animals • Match animals - to offspring • Be able to identify key features on their own bodies eg eyes, ears, arms, legs 	<ul style="list-style-type: none"> • Use drawings and labels to record their ideas • To investigate how animals and humans get nutrition from their food • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 	<ul style="list-style-type: none"> • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • Identify and name a variety of common animals that are carnivores, herbivores and omnivores • To understand the role of the 	<ul style="list-style-type: none"> • To observe different lights through sensory exploration. • To identify where the light source is. • To observe the difference between light and dark and begin to use the language for 	<ul style="list-style-type: none"> • To understand how a shadow is made through carrying out simple investigations. Make predictions and record results. • Be able to explain in simple terms how to make a shadow. • To 	<ul style="list-style-type: none"> • To understand how the eye and ears work. • Pupils will apply their understanding of how to strengthen, stiffen and reinforce structures.

		digestive system	<p>this.</p> <ul style="list-style-type: none">• Pupils will explore different musical instruments and the sounds made by different sized objects.	<p>understand what a reflection is and predict which materials can make a good reflection and which cannot. Carry out investigations to test this and record data.</p> <ul style="list-style-type: none">• To understand how sound is made.• To investigate how the sound pitch can change.• Record results and use them to	
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				<p>explain their ideas.</p> <ul style="list-style-type: none">• Pupils will use their knowledge of sound and materials to design their own musical instruments.• Pupils will choose one design from a selection to make.• Pupils will practise their skills in cutting, shaping and joining when making their instruments.• Pupils will evaluate their ideas and design against a set	
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				criteria and consider their own and others' views of how to improve their work.	
Spring 1			Spring 2		
Living Things and Their Habitats: Food Chains, producers, predators and prey			Animals Including Humans: Animal nutrition, teeth, diet, exercise, circulatory system Design and Make a healthy Picnic		
Encountering	Developing	Enhancing	Encountering	Developing	Enhancing
<ul style="list-style-type: none"> • Observe different animals in their habitats. • Begin to observe animals in their habitats outside of the school grounds. 	<ul style="list-style-type: none"> • To recap different habitats and the animals that live in them. • Construct and interpret a variety of food 	<ul style="list-style-type: none"> • To learn about the impact of the breaking of a food change and the effect on living things. • Be able to clearly communicate their learning 	<ul style="list-style-type: none"> • To try different foods and observe whether they like or dislike them. • To explore the difference between solid food and liquid 	<ul style="list-style-type: none"> • To understand the importance of nutrition in humans and animal • to recognise that animals get nutrition from food. • To identify the different 	Describe the ways in which nutrients and water are transported within animals, including humans.

	<p>chains, identifying producers, predators and prey.</p>	<p>using diagrams and the correct vocabulary.</p>	<p>and learn that we need both.</p> <ul style="list-style-type: none"> ● To observe our teeth using mirrors. ● Pupils will try different fruits and vegetables and match them with the plant they have come from. ● Pupils will identify which fruit and vegetables they like and dislike. ● Pupils will contribute towards making items for a 	<p>teeth and their functions in humans and animals</p> <ul style="list-style-type: none"> ● To know what a balanced diet is and why this is important for our bodies. ● To identify the main body organs of a human body and describe the functions of the heart, blood vessels and blood ● recognise the impact of diet, exercise, 	
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			<p>picnic eg by mixing biscuit mixture, making a fruit salad with pre-chopped fruit or buttering bread.</p>	<p>drugs and lifestyle on the way their bodies function</p> <ul style="list-style-type: none">● Pupils will use their knowledge of a healthy meal to identify foods and design a healthy picnic.● Pupils will understand where food comes from by identifying the plant from which a fruit or vegetable has grown	
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				<p>in a picture or in the environment or by identifying the main ingredients in a processed food such as bread.</p> <ul style="list-style-type: none">• Pupils will select from a range of designs, their picnic menu and make items for a picnic.• Pupils will create a set criteria linked to the purpose of their picnic and	
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				evaluate their design using this criteria.	
Summer 1			Summer 2		
Electricity: Appliances and safety, Circuits and Conductors, Investigating circuits			States of Matter: Solids, Liquids and Gases ad Reversible and Irreversible changes		
Encountering	Developing	Enhancing	Encountering	Developing	Enhancing
<ul style="list-style-type: none"> • To observe what happens when wires touch light bulbs. • To observe when a light is turned off and on. • To explore through play how different electrical appliances are used. 	<ul style="list-style-type: none"> • To understand that many everyday appliances require electricity • To understand the dangers of electricity • to generate electricity • o understand what makes 	<ul style="list-style-type: none"> • To make predictions then test their ideas around which materials are conductors of electricity. • Independently record results and use them to explain their learning. 	<ul style="list-style-type: none"> • To observe explore different solid and liquids • To smell different scents and begin to understand that the scent is there but cannot be seen. 	<ul style="list-style-type: none"> • To explore the difference between a solid, liquid and a gas • To understand how a gas is formed • To understand how solids, liquids and gases change state 	<ul style="list-style-type: none"> • To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

	<p>a complete circuit</p> <ul style="list-style-type: none"> • To investigate conductors of electricity • To demonstrate independent scientific thinking 			<ul style="list-style-type: none"> • To know what happens during evaporation. 	
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Cycle Three					
Autumn 1			Autumn 2		
<p>Evolution and Inheritance Design and make a sculpture of a dinosaur</p>			<p>Properties and Changes of Materials</p>		
Encountering	Developing	Enhancing	Encountering	Developing	Enhancing

<ul style="list-style-type: none"> • To explore and observe the differences between different fossils through sensory activities. • To explore and observe the differences in different textures of animal fur and plants. 	<ul style="list-style-type: none"> • Recognise that living things have changed over time. • Pupils will learn how dinosaurs are both similar to, and different from, reptiles we see today. • Pupils will learn about the three main types of dinosaur- the sauropods, ornithischians and the 	<ul style="list-style-type: none"> • To identify how animals and plants are adapted to suit their environment. • To be able to explain their answers using evidence. • To set up their own investigation and make predictions about the results. • To record data accurately and evaluate 	<ul style="list-style-type: none"> • To observe and explore different materials and be able to use key words to describe them eg soft, cold, wet, hard 	<ul style="list-style-type: none"> • compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, transparency, conductivity (electrical 	<ul style="list-style-type: none"> • use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic •
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	<p>therapods and that modern birds evolved from a group of therapods that included the t-rex and velociraptor</p> <ul style="list-style-type: none"> • Pupils will learn the key characteristics of different dinosaurs. • To know what a fossil is and what it can tell us about living things 	<p>their findings.</p>		<p>and thermal), and response to magnets</p> <ul style="list-style-type: none"> • understand that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution 	
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	<p>millions of years ago</p> <ul style="list-style-type: none"> • To ask questions • Observe differences between parents and children • To recognise that living things create offspring of the same kind, but not identical and that offspring may vary • and make predictions. • To be able to carry out an investigation 			<ul style="list-style-type: none"> • . <p>Demonstrate that dissolving, mixing and changes of state are reversible changes</p>	
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| | <ul style="list-style-type: none">• How animals adapt to suit their environment leads to evolution.• Pupils will design a sculpture of a dinosaur with its main characteristics, using their knowledge of dinosaurs learnt in humanities and science.• Pupils will practise a range of skills in cutting, | | | | |
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	<p>joining, shaping and strengthening materials to suit their design.</p> <ul style="list-style-type: none"> • Pupils will evaluate their design following a set criteria and consider ways in which they can improve their design. 				
Spring 1			Spring 2		
Living Things and their Habitats Designing and Making a Bug Hotel			Plants and Growth		
Encountering	Developing	Enhancing	Encountering	Developing	Enhancing

<ul style="list-style-type: none"> • Identify different habitats around them within the school grounds. • Identify different living things and begin to identify where they may live. 	<ul style="list-style-type: none"> • To understand the meaning of the term habitat • To explore plants and animals within microhabitats • To identify native habitats and their living things within the UK (Grassland, farmland, woodland, river, sea) • To identify habitats around the world (rainforest, polar, desert, ocean) • To compare and group living things in different ways • To understand how living 	<ul style="list-style-type: none"> • Give reasons for their conclusions and explain what they have found out, supporting their conclusions with evidence. 	<ul style="list-style-type: none"> • Learn to observe and compare different plants and flowers – smell, touch, taste (herbs) and begin to use the language of comparison eg big, small, like, dislike • Observe and take part in caring for plants growing by Planting bulbs, weeding and watering plants • Begin to identify what plants and 	<ul style="list-style-type: none"> • Investigate what plants need to stay alive. Make predictions. • Measure plants growing and collect and record data • Be able to say in simple terms what a plant needs to stay alive. • Be able to label the parts of a plant and begin to understand their purpose 	<ul style="list-style-type: none"> • Plan an investigation around finding out what plants need to grow and begin to ask questions eg how much water is needed? Independently collect data and use this to explain their findings. • To learn the parts of a plant and explain the purpose of each part.
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	<p>things survive in their habitat (food chains)</p> <ul style="list-style-type: none"> • To record data about living things in different habitats and say simply what they have found out. • Pupils will use what they have learnt in science to design a bug hotel that will attract different bugs and insects. • Pupils will choose one design out of a collection they have drawn, to build their hotel. • Pupils will choose appropriate 		<p>humans need to stay alive</p>		
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	<p>materials for making a bug hotels eg can we make it out of cardboard if it will be outside?</p> <ul style="list-style-type: none"> • Pupils will build their bug hotels out of wood and sticks and evaluate their designs based on a set criteria, • Pupils will monitor the effectiveness of the bug hotel (has it attracted bugs and insects?) over time. • 				
Summer 1			Summer 2		

Earth and Space			Forces		
Encountering	Developing	Enhancing	Encountering	Developing	Enhancing
<ul style="list-style-type: none"> • Be able to make observations about the weather and identify the sun. • Be able to identify that the sun is hot. • Identify stars and that we see them at night time. • Be able to compare and use the terms day and night. 	<ul style="list-style-type: none"> • Be able to name and identify the seasons - differences between each, • Begin to identify the different planets and simple differences. • Make observations of the moon phases and make recordings of their observations 	<ul style="list-style-type: none"> • REsearch and be able to communicate their learning about the solar system and begin to understand how scientists learn about the planets. 	<ul style="list-style-type: none"> • Exploring air resistance - running and matching word to the feel of wind on faces • Blowing and releasing air from balloons/ bubbles • Dropping different materials and objects and explore what happens • Exploring what happens to 	<ul style="list-style-type: none"> • Ask questions, make predictions and set up investigations to test ideas around wind resistance, floating and water resistance, gravity and friction eg Making parachutes, planes and boats, • Ask questions, make 	<ul style="list-style-type: none"> • Plan their own investigations and collect data. Use evidence to support their evaluations.

	<ul style="list-style-type: none"> • To understand how day and night happen due to the Earth's rotation. • Pupils will learn how to make papier mache. • Pupils will design a solar system that can be made out of papier mache. • Pupils will make their own papier mache planets following 		<p>different objects in water and whether they float or sink.</p>	<p>predictions and set up investigations to test ideas around the effect of different levers, pulleys and gears.</p> <ul style="list-style-type: none"> • Be able to say simply what they have found out. • Pupils will use their knowledge of floating to design their own boats that will carry a small load. 	
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	<p>their designs.</p> <ul style="list-style-type: none">• Pupils will evaluate their designs based on agreed criteria- are they the correct size, shape and proportion?			<ul style="list-style-type: none">• Pupils will be able to select materials from household objects to make their boats. Pupils will choose from a selection of designs which design they will make and will evaluate their design following it being made.	
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