

Progression in Science

National Curriculum	Possibilities <i>This driver helps pupils to build aspirations and identify available opportunities for their future lives</i>	Initiative <i>This driver helps pupils to grow as independent learners and develops resourcefulness in a variety of situations</i>	Community & Environment <i>This driver develops a sense of belonging and nurtures curiosity about, and empathy for, local, national and global issues</i>	Health & Well-being <i>This driver underpins every aspect of our curriculum. It helps to guide children's life choices and nurtures emotional growth</i>		
	Investigation skills Higher order thinking skills To be able to hypothesise	Promotes curiosity Logical reasoning Questioning skills	Investigating the local area Habitats/seashore Canvey marshes wildlife park	Knowledge of human development Nutrition Exercise		
	<p><u>Purpose of study- Science.</u> A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave and analyse causes.</p> <p><u>Aims</u> The national curriculum for science aims to ensure that all pupils:</p> <ul style="list-style-type: none"> • develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. • develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them. • are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future. 					
Year 1			Year 2			
Autumn		Spring	Summer		Autumn	
Animals including humans and seasonal change (ongoing)		Everyday materials and Seasonal change	Plants and Seasonal change		Uses of everyday materials	
Animals (including humans) and Plants (ongoing)		Living things and their habitats and Plants (ongoing)		Living things and their habitats and Plants (ongoing)		
Key Skills	<ul style="list-style-type: none"> • Identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals. • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. • Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles and mammals, including pets.) • 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"> • Distinguish between an object and the material from which it is made. • Identify and name a variety of everyday materials, including wood, plastic, glass, water and rock. • Describe the simple physical properties of a variety of everyday materials. • Compare and group together a variety of everyday materials on the basis of their physical properties. <p>Seasonal change- throughout the year the children will need to:</p>	<ul style="list-style-type: none"> • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. • Identify and describe the basic structure of a variety of common flowering plants (and trees) including roots, stem/trunk, leaves and flowers. 	<ul style="list-style-type: none"> • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	<ul style="list-style-type: none"> • Notice that animals, including humans, have offspring which grow into adults. • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air.) • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 	<ul style="list-style-type: none"> • Explore and compare the differences between things that are living, dead, and things that have never been alive. • Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. • Identify and name a variety of plants and animals in their habitats, including micro-habitats. • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.
ONGOING						

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	<p>Seasonal change- throughout the year the children will need to:</p> <ul style="list-style-type: none"> observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. seasons and record the changes. 	<ul style="list-style-type: none"> observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. seasons and record the changes. 	<p>Seasonal change- throughout the year the children will need to:</p> <ul style="list-style-type: none"> observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. seasons and record the changes. 		<p>PLANTS</p> <ul style="list-style-type: none"> Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. 	<p>PLANTS</p> <ul style="list-style-type: none"> Observe and describe how seeds and bulbs grow into mature plants. <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>
<p>Working scientifically (Key Stage One)</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"> Asking simple questions and recognising that they can be answered in different ways. Observing closely, using simple equipment Performing simple tests Identifying and classifying Using their observations and ideas to suggest answers to questions Gathering and recording data to help in answering questions. 		<ul style="list-style-type: none"> 	<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"> Asking simple questions and recognising that they can be answered in different ways. Observing closely, using simple equipment Performing simple tests Identifying and classifying Using their observations and ideas to suggest answers to questions Gathering and recording data to help in answering questions 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
<p>Vocabulary</p>	<p>Birds, fish, amphibians, reptiles, mammals and invertebrates. Feathers, scales, gills, fins, hair, land, water, backbone, skeleton.</p> <p>Carnivores, omnivores and herbivores, meat and plants.</p> <p>Seasons: spring, summer, autumn, winter. Year, months, days. Hot, warm, mild, cold, sunny, cloudy, rain, sleet, snow, hail etc.</p>	<p>Wood, plastic, glass, metal, water, rock, brick, fabric, sand, paper, flour, butter, milk, soil.</p> <p>Properties: hard/soft, stretchy/not stretchy, shiny/dull, rough/smooth, bendy/not bendy, transparent/not transparent, sticky/not sticky.</p> <p>Touch, see, hear, smell and taste.</p>	<p>Trees: deciduous, evergreen, ash, birch, rowan, oak, apple, sweet chestnut, horse chestnut, common lime, willow, sycamore, fir, pine, holly etc</p> <p>Daisy, dandelion, garlic mustard, red clover, spear thistle, sorrel.</p> <p>Daffodil, bluebells, crocus etc.</p>	<p>Wood, plastic, glass, metal, water, rock, brick, fabric, sand, paper, hard/soft, shiny/dull, rough/smooth, transparent/not transparent, bend, stretch, twist, crumble.</p>	<p>Baby, toddler, child, teenager, adult, energy, healthy foods, hygiene, germs, carnivores, herbivores, omnivores. 7 Life processes: movement, respiration, sensitivity, nutrition, excretion, reproduction, growth.</p> <p>Trees, deciduous, evergreen, roots, branch, trunk, stalk, leaf,</p>	<p>Habitat, micro habitat, pond, meadow, log pile, woodland, river, lake, beach, cliff, organism, invertebrates, pond animals, trees, flowering plants.</p>

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	Temperature, degrees Celsius, thermometer, weather vane, anemometer.		Roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs.		petal, seeds, bulbs, twigs, water, light, heat, temperature.	
Whole School Science projects (assemblies) or visits / visitors.	Night Owls visit-various birds of prey (every 2/3 years)	Science week	Duck eggs in incubator-hatch into ducklings (every 3 years)		Science week	Year 2 summer visit to country park

	Nursery			Reception		
	Autumn I wonder what makes me special? All about me (1 st half) Celebrations (2 nd half)	Spring I wonder what's out there? Transport (1 st half) Dinosaurs (2 nd half)	Summer I wonder what changes? Animals (1 st half) Summer (2 nd half)	Autumn	Spring	Summer
Nursery year A	<p><u>All about me</u> To talk about food that we like or dislike.</p> <p>To discuss what a healthy diet consists of.</p> <p>To know that babies grow into children like them</p> <p>To name body parts using songs to support..</p> <p>To observe changes when cooking. I.e. Bread rising</p>	<p><u>Celebrations</u> To know that the season changes from Autumn to Winter.</p> <p>To understand that the weather changes.</p> <p>To understand that we will need to wear coats, gloves, hats, scarves as the weather gets colder.</p> <p>To explore the changing colours of the natural world when going on a nature walk.</p> <p>To use a wide range of words to describe what we can see, feel, hear and taste</p> <p>To observe changes when cooking. I.e. Bread rising</p>	<p><u>Summer</u> To make simple observations</p> <p>To explore different kinds of forces they can feel. e.g. the wind moving bubbles and kites.</p> <p>To develop knowledge of how to use our senses to explore different materials</p> <p>To talk about the differences between materials and changes they notice. e.g. sink or float?</p> <p>To learn to notice and talk about changes in materials e.g, ice melting</p> <p>To observe changes when cooking. I.e. Bread rising</p>	<p><u>Let's Celebrate...</u> I wonder what/ who is so special?</p> <p>To name the main body parts and features of the face.</p> <p>To explore the natural world around them.</p> <ul style="list-style-type: none"> • Autumn walk • Seasons (autumn/winter) • Explore outside environment. • Draw simple pictures of plants (leaves) • Leaf pictures <p>To show understanding that we need to care for living things.</p>	<p><u>Down at the bottom of the garden...</u> I wonder what lives there?</p> <p>To explore the natural world around them, making observations and drawing pictures of animals and plants.</p> <ul style="list-style-type: none"> • Label parts of a flower. • Planting beans and seeds. • Life-cycle of a butterfly (class caterpillars) • Minibeast hunt/ habitats • Map of the garden and where minibeasts can be found. <p>To understand some important processes and changes in the natural world around them,</p>	<p><u>Spectacular stories and super seaside's...</u> I wonder what happens next?</p> <p>To learn about environments that are different to the one in which they live.</p> <ul style="list-style-type: none"> • African animal drawings • Nocturnal animals • Making sense of different environments and habitats. <p>To 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.</p> <ul style="list-style-type: none"> • Looking after plants in the garden

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				To know and talk about the different factors that support their overall health and wellbeing.	including seasons and changing states of matter. <ul style="list-style-type: none"> • Explore ice melting. • Compare different mini beast habitats and environments. • Drawing signs of spring 	<ul style="list-style-type: none"> • Changing states of matter-cooking. What happens to dough when heated? What happens to icing as water is added and as it dries?
	Autumn <u>I wonder what makes me special?</u> All about me (1 st half) <u>I wonder will it mix?</u> Colours (2 nd half)	Spring <u>I wonder why does a cat meow?</u> Pets (1 st half) <u>I wonder if it likes tea?</u> Little monsters (2 nd half)	Summer <u>I wonder how old is a whale?</u> Under the sea (1 st half) <u>I wonder how does ice feel?</u> Weather (2 nd half)	To understand seasonal changes – Summer to Autumn and Autumn to Winter.	To understand seasonal changes – Winter to Spring.	To explore floating and sinking. To understand seasonal changes – Spring to Summer.
Nursery year B	<u>All about me/Colours</u> To talk about food that we like or dislike. To discuss what a healthy diet consists of. To know that babies grow into children like them To name body parts using songs to support. To observe changes when cooking. I.e. Bread rising To plant cress, bulbs and seeds To take part in a nature walk. <ul style="list-style-type: none"> • Observing the changes in trees – leaves changing colour • Natural colour palette 	<u>Pets/Little monsters</u> Caring for animals To recognise and name different pets. To name baby pets. To know if animals live in a cage, aquarium, inside or outside. To know that animals are born as babies and grow and age like people.	<u>Under the sea/Weather</u> To make simple observations To explore different kinds of forces they can feel. e.g. the wind moving bubbles and kites. To develop knowledge of how to use our senses to explore different materials To talk about the differences between materials and changes they notice. e.g. sink or float? To learn to notice and talk about changes in materials e.g, ice melting To observe changes when cooking. I.e. Bread rising To explore changes in weather – puddle walk. Measuring rainfall			

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<p>Nursery Development Matters (3&4 Year olds)</p>	<p>Communication and language.</p> <ul style="list-style-type: none"> Understand 'why' questions, like: "Why do you think the caterpillar got so fat?" <p>Personal, Social and Emotional Development.</p> <ul style="list-style-type: none"> Making healthy choices about food, drink, activity and tooth brushing. <p>Understanding the World.</p> <ul style="list-style-type: none"> 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. 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. Explore and talk about different forces they can feel. Talk about the differences between materials and changes they notice. 					
<p>Reception Development Matters</p>				<p>Communication and language.</p> <ul style="list-style-type: none"> 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. <p>Personal, Social and Emotional Development.</p> <ul style="list-style-type: none"> Know and talk about the different factors that support their overall health and wellbeing: <ul style="list-style-type: none"> - regular physical activity - healthy eating - tooth brushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian <p>Understanding the World.</p> <ul style="list-style-type: none"> Explore the natural world around them. 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. 		
<p>Reception ELGs</p>				<p>Communication and language.</p> <p>Listening, Attention and Understanding.</p>		

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				<ul style="list-style-type: none">• Make comments about what they have heard and ask questions to clarify their understanding. <p>Personal, Social and Emotional Development. Managing self.</p> <ul style="list-style-type: none">• 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. The Natural World.</p> <ul style="list-style-type: none">• 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.
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