

Science - Progression Map

Area of Learning (EYFS) & National Curriculum Strand (NC)



	Nursery	Reception	Year 1	Year 2
			Working Scientifically	
	<p>Science at Foundation stage is covered mainly in 'Understanding of the World', 'Communication and Language' and 'Personal, Social and Emotional Development'.</p> <p>It will be taught through focus tasks and the continuous provision inside and outside</p> <p>It is introduced through activities encouraging the child to explore, problem solve, observe, predict, think, make decisions and talk about the world around them.</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 	
	STRAND - Working scientifically			
Skills	Scientists in Early Years will...	Scientists in Year 1 will....	Scientists in Year 2 will....	
	<p>Nursery</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>Reception</p> <p>Communication and Language</p> <ul style="list-style-type: none"> • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and how they might happen. • Use new vocabulary in different contexts. <p>ELG – Listening, Attention and Understanding</p> <ul style="list-style-type: none"> • Make comments about what they have heard and ask questions to clarify their understanding. 	<ul style="list-style-type: none"> • pose and answer questions, and make predictions about familiar objects and events • participate in guided investigations to explore and answer questions • use informal measurements to collect and record observations, using digital technologies as appropriate • use a range of measures to sort information, including drawings and provided tables and through discussion, compare observations with predictions • compare observations with those of others. • represent and communicate observations in a variety of ways. 	<ul style="list-style-type: none"> • pose and respond to questions, and make predictions about familiar objects and events. • participate in guided investigations to explore and answer questions • use informal measurements to collect and record observations, including drawings and provided tables • through discussion, compare observations with predictions. • compare observations with those of others. • represent and communicate observations in a variety of ways. 	

	Scientists in the Early Years will...		Scientists in Year 1 will...	Scientists in Year 2 will...	
STRAND - Plants					
Key learning	Nursery Understanding the World <ul style="list-style-type: none"> • Talk about what they see, using wider vocabulary. • Explore how things work. • Plant seeds and care for growing plants. • Begin to understand the need to respect and care for the natural environment. • Understand the key features of the life cycle of a plant and an animal. 	Reception Understanding the World <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 season on the natural world around them. ELG <ul style="list-style-type: none"> • Explore the natural world around them, making observations and drawing pictures of animals and plants. 	Knowledge	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, (wild and garden flowers) including trees.	Observe and describe how seeds and bulbs grow into mature plants. Find and describe how plants need water, light and a suitable temperature to grow and stay healthy
				Growing locally there will be a vast array of plants which all have specific names. These can be identified by looking at the key characteristics of the plant. Plants have common parts but they vary between the different types of plants. Some trees keep their leaves all year whilst other trees drop their leaves during Autumn and grow them again during Spring.	Plants may grow from either seeds or bulbs. These can germinate and grow into seedlings which then continue to grow into mature plants. These mature plants may have flowers, which then develop into seeds, berries, fruit etc. Seeds and bulbs need to be planted outside at particular times of the year and they will germinate and grow at different rates. Some plants are better suited to grow in full sun and some grow better in partial or full shade. Plants also need different amounts of water and space to grow well and stay healthy.
Key Vocabulary	Grow, soil, seed, water, flower, plant	Seed, soil, water, sunlight, shoot, roots, leaf, grow, stem, flower.		Leaves, flower, blossom, petal, fruit, roots, berry, seed, trunk, branch, stem, bark, stalk, bud, deciduous, evergreen. Names of garden and wild flowering plants/trees in the local area.	As for Year 1 plus - light, shade, sun, warm, cool, water, grow, healthy

<p>Outcomes</p>	<p>Children will know that plants and trees are all around us and can be all shapes and sizes. They will show awareness that a seed can grow into a plant and can describe what they can see at different stages.</p>	<p>Children will know that plants grow from seeds and will be able to describe what plants need to be able to grow. They will experience growing a plant from seed and be aware that different seeds will grow into different plants. They will know that fruits and vegetables grow on plants/ some trees.</p>	<p>Outcomes</p>	<p>Can name trees and other plants that they see regularly. Can describe some of the key features of these trees and plants e.g. The shape of the leaves, the colour of the flower/blossom. Can point out trees that have lost their leaves and those that have kept them all the year round. Can point to and name the parts of the plant, recognising that they are not always the same e.g. leaves and stems</p>	<p>Can describe how plants that have grown from seeds and bulbs have developed over time. Can identify plants that grow well in different conditions.</p>
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STRAND – Animals including humans

<p>Key learning</p>	<p>Nursery Understanding the World</p> <ul style="list-style-type: none"> • Talk about what they see, using a wide vocabulary. • Begin to understand the need to respect and care for all living things. • Begin to make sense of their own life-story and family's history. • Make healthy choices about food, drink, activity and tooth brushing. 	<p>Reception Understanding the World</p> <ul style="list-style-type: none"> • Understand the key features of the life-cycle of a plant and an animal. • Describe what they see, hear and feel while they are outside. • Recognise that some environments are different to the one in which they live. <p>ELG</p> <ul style="list-style-type: none"> • Explore the natural world around them, making observations and drawing pictures of animals • Know some similarities and difference between the natural world around them and contracting environments, drawing on their experiences and what has been read in class. 	<p>Knowledge</p>	<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and names a variety of common animals that are carnivore, herbivores and omnivores. Describe and compare the structures of a variety of common animals. (Fish, amphibians, reptiles, birds and mammals including pets). Identify and 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>Animals vary in many different ways having different structures e.g. wings, tail, ears etc. They</p>	<p>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 of exercise for humans and eating the right amounts of different types of food and the importance of hygiene.</p> <p>Animals including humans have offspring. In humans and some animals these offspring will be young such as babies</p>
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		<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 exercises - healthy eating - tooth brushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian. <p>ELG</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>also have different skin coverage, feather, hair etc. These features can be used to identify them. Animals eat certain things some eat other animals, some eat plants and some eat both plants and animals. Humans have key parts in common but these vary from person to person. Humans (and other animals) find out about the world using their senses. Humans have five senses, sight, touch, hearing, taste and smelling. These senses are linked to particular parts of the body.</p>	<p>and kittens. In other animals such as chickens and insects there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles. All animals including humans have basic needs of feeding, drinking and breathing which must be satisfied in order to survive and to grow into healthy adults. They also need the right amounts and types of food and exercise. Good hygiene is also important in preventing infections and illness.</p>
Key vocabulary	<p>Feel, touch, smell, taste, hear, soft, hard, loud, quiet, animal names as appropriate. Clean, wash, hygiene, brush, toothpaste/brush, being safe, road, safety</p>	<p>Feel, touch, soft/hard, rough, smooth, slippery, slimy, smell, taste, like, dislike, taste, hear, loud/quiet Fruit, vegetable, healthy, animal names as appropriate, hygiene, safety, road safety, pedestrian,</p>	<p>Head, body, ear, eyes, mouth, teeth, leg, tail, wing, claw, find, scales, feathers, fur, beak, paws, hooves, carnivore, herbivore omnivore, reptiles, mammals, sense, touch, see, smell, taste, hear, fingers, (skin) eyes, nose, ear and tongue.</p>	<p>Offspring, reproduction, growth, child, young, old, stages examples, chicken, hen, baby, child, adult, caterpillar, butterfly. Exercise, heartbeat, breathing, hygiene, germs, disease, food, types sample, meat, fish, vegetables, bread, rice pasta.</p>	
Outcomes	<p>Through sensory exploration children will begin to be able to describe how something feels/tastes/sounds/looks/smells They will show awareness that animals have needs and know how we can help to look after an animal.</p>	<p>Children will describe ways of keeping healthy, including by eating fruits and vegetables and doing exercise. They will name a range of animals and identify features and body parts of the animals. They will be able to use their senses to explain how something feels/sounds/tastes/looks/smells like using some appropriate vocabulary.</p>	<p>Animals - Can name a range of animals which includes animals from each of the vertebrate groups. Can describe the key features of these animals. Can label key features on a picture/diagram. Can write descriptively about an animal. Can write an I am riddle about an animal. Can describe what a range of animals eat. Humans can play and lead - 'Simon says'. During PE lessons can follow instructions involving parts of the body. Can label parts of the body on pictures and diagrams. Can explore objects using different senses.</p>	<p>Can describe how animals including humans have offspring, which grow into adults using the appropriate names for the stages. Can state the basic needs of animals including humans for survival. Can state the importance for humans for exercise, eating the right amounts of different types of food and hygiene. Can name food in the right section of the Eat well guide.</p>	

	Year 2 only	STRAND - Living things and their habitats	
Key learning		Knowledge	<p>Explore and compare the differences between things that are living, dead and things that have never been alive.</p> <p>Identify that most living things live in habitats to which they are suited and describe how different habitats provides for the basic needs of different kinds of animals and plant and how they depend on each other.</p> <p>Identify and name a variety of plants and animals in their habitat including micro habitats.</p> <p>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.</p>
			<p>All objects are either living, dead or have never been alive. Living things are plants, (including seeds) and animals. Dead things include, dead animals and plants and parts of plants and animals that no longer attached. E.g. twig and leaves, shells, fur hair and feathers. (This is a simplification but appropriate for Year 2 children). An object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive. (Again ignoring that plastics are made of fossil fuels).</p> <p>Animals and plants live in a habitat to which they are suited which means that animals have suitable features that help them move and find food and plants and they have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants - shelter, food and water. Within a habitat there are different micro habitats e.g. woodland, on a bark of a tree, on the leaves, leaf litter. These micro habitats have different conditions e.g. light or dark, damp and dry. These conditions affect what plants and animals live there. The plants and animals in the habitat depend on each other for food and shelter. The way that animals obtain their food from plants and other animals can be shown in a food chain.</p>
Vocabulary	Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, names of local habitats, e.g. pond, woodland. Names of micro habitats e.g. bushes, etc.		
Outcomes	Can find a range of items that are outside that are living, dead or never been alive. Can name a range of animals and plants that live in a habitat and a micro habitat that they have studied. Can talk about how the features of these animals and plants make them suitable to the habitat. Can talk about what the animals eat in the habitat and know the plants provide shelter for them. Can construct a food chain that starts with a plant and has arrows pointing in the correct direction.		

STRAND - Materials

Key learning	<p>Nursery 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 the differences between materials and changes they notice. • Explore and talk about different forces they can feel. 	<p>Reception</p> <ul style="list-style-type: none"> • Understanding the World • Learn new vocabulary • Explore the natural world around them. <p>ELG</p> <ul style="list-style-type: none"> • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. 	Knowledge	<p>All objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal or wood spoons. Materials can be described by their properties i.e. shiny, dull, rough, and smooth. Some materials can be in different forms with very different properties.</p>	<p>All objects are made of one or more material that has been chosen specifically because they have suitable properties for the task. For example a window is transparent so it can be seen through. A material can be suitable for different purposes and an object can be made from different materials. Objects made of some materials can be changed for example clay can be changed by squashing and stretching and rolling.</p>
Key vocabulary	<p>Feel, soft, hard, wet, dry, warm, cold, loud, quiet</p>	<p>Water, ice, freeze, melt, heat, warm, cold, float, sink, heavy, light, hard, soft, smooth, metal, magnetic</p>	Knowledge	<p>Distinguish between an object and the material for which it is made. Identify and name a variety of every day materials wood plastic, glass, metal, water and rock. Describe a simple physical properties of a variety of every day materials. Compare and group together a variety of every day materials on a basis of their simple physical properties.</p>	<p>Identify and compare the suitability of a variety of every day 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.</p>
				<p>Objects, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card, cardboard, rubber, wool, clay. Properties, hard, soft, stretch, stiff, bendy, floppy, waterproof, absorbent, break, tears, rough, shiny, smooth, dull, see through</p>	<p>Names of materials, increased range from Year 1. Properties of materials as for Year 1 plus, opaque, transparent, translucent, reflective, non-reflective, flexible, rigid, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing/bend/bending, stretch, stretching.</p>

Outcomes	Children will begin to be able to describe how something feels/tastes/sounds/looks/smells through sensory exploration.	They will be able to use their senses to discuss differences between materials using some appropriate vocabulary. Children will be able to explain what how ice melts or how water turns to ice, and what happens to chocolate as it is heated. They will show awareness of properties of materials when choosing materials for a task, e.g. making a floating device, making an object move using magnets and be able to explain their choice.		Can label a picture or a diagram of an object made of different materials. Can describe the properties of different materials.	Can name an object, say what material it is made from, identify it's properties and made a link between the properties and the particular use. Can label a picture or diagram of an object made from different materials. Can identify the properties a material needs to be fit for purpose e.g. a car tyre made of rubber. Whilst changing the shape of an object can describe the actions used. For example can use the words flexible, or stretchy to describe a material that can be changed. Can recognise that a material may come in different forms that have different properties.
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STRAND - Seasonal changes

Key learning	<p style="text-align: center;">Nursery</p> <p>Understanding the World</p> <ul style="list-style-type: none"> Use all their senses in hand-on exploration of natural materials. 	<p>Reception</p> <ul style="list-style-type: none"> Understanding the World Learn new vocabulary. Explore the natural world around them. Describe what they see, hear and feel while they are outside. Understand the effect of changing seasons on the natural world around them. <p>ELG</p> <p>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</p>	Knowledge	<p>In the UK the day length is longest at mid- summer (about 16 hours) and gets shorter each day until mid - winter (8 hours). Before getting longer again. The weather also changes with the season. In the UK it is usually colder and rainier in Winter and hotter and drier in the Summer. The change in weather causes many other changes i.e. the number of mini-beast found outside, plant growth , leaves on trees and types of clothes worn by people.</p> <ul style="list-style-type: none"> Observe change across the four seasons. Observe and describe weather associated with the seasons and how day, length varies. 	<p>Confidently discuss the changing seasons.</p> <p>Continue through art work, English activities.</p>
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Key vocabulary	Leaves, changing, colours (and colour names), growing, falling, cold, warm, hot, types of weather	Autumn, Winter, Spring, Summer, warmer, colder, ice, frost, leaves, changing, growing, types of weather.		Weather - sunny, rainy, windy, snowy etc. Season, Autumn, Winter, Spring, Summer, sun, sunrise, sunset and day length.	Daily discussion and observations. Weather forecasts.
Outcomes	<ul style="list-style-type: none"> • children will be able to observe and comment about the weather, trees and plants and • know that the weather, trees and plants can change and aren't always like they are now. 	Children will be able to: <ul style="list-style-type: none"> ■ describe features of individual seasons (e.g. what happens to trees, plants and the weather) and ■ name the seasons. 		Can name the four seasons and identify when in the year they occur. Can describe weather in different seasons in over a year. Can describe days as being longer in time, longer in the Summer and shorter in the Winter. Can describe other features that change through the year.	Confidently discuss the different types of weather.