



Subject Area: Science

Curriculum drivers: The curriculum is underpinned by the school's **Curriculum Driver**: Communication alongside our school values: Confidence, Compassion, Creativity and Curiosity.

The spiritual, moral, social and cultural development of our pupils and their understanding of the core values of our society are woven through the curriculum. The curriculum also consolidates the fundamental British values of democracy, the rule of law, individual liberty, and mutual respect and tolerance of those with different faiths and beliefs.

The knowledge and skills children learn must be co-ordinated and coherent. In order to achieve this in our curriculum, we have identified the key concepts or overarching ideas within each subject. To enable the children to access them, we call these the 'Big Ideas'. In science these are: living things, materials, curiosity

This document shows the progression of required vocabulary that the children should understand throughout each topic as a prerequisite for further learning. Vocabulary is not exclusive to each year group, so it is not repeated on the grid in subsequent year groups for the same topic. For example, a year 2 child studying 'Animals including Humans' may use the vocabulary listed in the year 2 column as well as that in the year 1 column. Where vocabulary may have already been encountered in a previous year group but in a different topic, this will be listed under 'Previously introduced vocabulary'.

EYFS

Science Objectives most closely linked to learning within the EYFS Framework (2021) and Development Matters come from;

Communication and Language (C&L)

Through conversation, story-telling and role play, where children share their ideas with support and modelling from their teacher, and sensitive questioning that invites them to elaborate, children become comfortable using a rich range of vocabulary and language structures.

Physical Development (PD)

Gross and fine motor experiences development incrementally through early childhood. Gross motor skills provide the foundation for developing healthy bodies and social and emotional well-being. Fine motor control and precision helps with hand-eye co-ordination, which is linked to early literacy. Children should be provided with opportunities to develop their core strength, stability, balance spatial awareness, co-ordination and agility through both indoor and outdoor games and opportunities. Additionally, opportunities to explore small world activities, puzzles, arts and craft will allow children to develop proficiency, control and confidence.

Understanding the World (UW)

Children develop an understanding of the world through guidance in making sense of their physical world and their community. Children will learn through their own personal experiences and by listening to a broad selection of stories, non-fiction, rhymes and poems, which will foster their understanding of our culturally, socially, technologically and ecologically diverse world. These opportunities will also enrich and widen the children's vocabulary and support the development of early literacy skills.

KS1 National Curriculum Aims (End of Key Stage expectations)

From the Science programmes of study: key stages 1 and 2 National curriculum in England;

The national curriculum for science aims to ensure that all pupils:

- 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.

KS1 Pupils should be taught about:

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.

Pupils should be taught to;

Working Scientifically

- ask simple questions and recognise that they can be answered in different ways
- observe closely, using simple equipment
- perform simple tests
- identify and classify
- use their observations and ideas to suggest answers to questions

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- gather and record data to help in answering questions

Plants

- 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, including trees.
- 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.

Animals (including humans)

- 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
- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds 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.
- 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.




Uses of Everyday Materials

- distinguish between an object and the material from which it is made
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, 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 simple physical properties.
- 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

Seasonal Changes

- observe changes across the four seasons
- observe and describe weather associated with the seasons and how day length varies.

KS1 Science curriculum 'Big ideas'.

<p style="text-align: center;">Living things</p>  <p style="text-align: center;">There are a wide variety of living things that have similar and different characteristics and need different conditions to thrive.</p>	<p style="text-align: center;">Materials</p>  <p style="text-align: center;">There are different materials that are made out of particles; have different properties and are used for different things.</p>	<p style="text-align: center;">Curiosity</p>  <p style="text-align: center;">To ask and answer scientific questions about what they do not know but also about the things they think they already know.</p>
<p>Taught through...</p> <p style="text-align: center;">Plants Animals Living things and their habitats</p>	<p>Taught through...</p> <p style="text-align: center;">Everyday materials Scientists and inventors</p>	<p>Taught through...</p> <p style="text-align: center;">Working scientifically Seasons Scientists and inventors</p>

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SKILL:		EYFS	Year 1	Year 2
Working Scientifically COMMUNICATION, CURIOSITY	Questioning	<ul style="list-style-type: none"> ask questions to find out more information (C&L) 	<ul style="list-style-type: none"> ask simple questions stimulated by their exploration of the world 	<ul style="list-style-type: none"> ask simple questions about their experiences and observations of objects, living things or events
	Observing	<ul style="list-style-type: none"> describe what they see, hear and feel whilst outside (UW) find out about the natural world around them through exploring (UW) 	<ul style="list-style-type: none"> that observing means to watch something and notice what happens to make observations using simple equipment (magnifying glass, rain gauge) 	<ul style="list-style-type: none"> to make observations using equipment correctly (thermometer, ruler) to choose appropriate equipment for observation to use observations to suggest an answer or solve a problem, recognising that some can be answered in a variety of ways, with support
	Planning & Performing Simple Tests	<ul style="list-style-type: none"> predict what will happen during play (e.g. with water and floating) (UW) 	<ul style="list-style-type: none"> perform simple tests to explore a question or idea suggested to them, with support say what to look out for and what to measure within their test, with support 	<ul style="list-style-type: none"> that data is a set of facts or measurements that a fair test is a controlled investigation where only one variable is changed to identify the variables that are relevant to the question or idea that is being tested to suggest a practical way to finding things out or collect data to answer a question or idea that I am investigating
	Identifying and Classifying	<ul style="list-style-type: none"> group and name members of a category (C&L) able to group and name members of a category and suggest possible category names (C&L) match and sort objects (M) use comparative language to group objects (M) 	<ul style="list-style-type: none"> to recognise basic features, similarities or difference of objects or living things to sort and group objects or living things in different ways 	<ul style="list-style-type: none"> to make comparisons between basic features of objects and living things to support identification and/or classification to sort and group objects and living things on the basis of their observations and explain their reasons
	Gathering and Recording	<ul style="list-style-type: none"> talk about what I have observed (UW) draw symbols and take photos (UW) 	<ul style="list-style-type: none"> to present evidence they have collected either orally or in a simple template (provided for them) to help in answering questions e.g. simple tables, charts or diagrams to draw or photograph evidence and add simple labels 	<ul style="list-style-type: none"> gather and record data in appropriate ways with increasing independence to help in answering questions (by drawing tables and bar charts or labelled diagrams)
	Concluding	<ul style="list-style-type: none"> say what happened (UW) 	<ul style="list-style-type: none"> say what has changed when observing objects or living things respond to suggestions to connect what has been observed with further possible actions or observations recognise links between observations and answers to questions 	<ul style="list-style-type: none"> use their observations and findings to suggest answers to questions use an understanding of what has been observed or their own experiences to suggest outcomes e.g. further actions or observations
	Key Vocab	Receptive	what happened, explain (<i>how it works</i>)	explore, natural environment, observe, equipment, features, similarities, differences, evidence, label, predict
Expressive		see, hear, feel, smell,	Test, magnifying glass, watch, notice,	similarities, differences, label, fair test, predict, observe, equipment

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	EYFS	Year 1	Year 2
Seasons Key knowledge	<ul style="list-style-type: none"> – there are four seasons each year; autumn, winter, spring and summer CURIOSITY – In autumn the weather gets colder and the leaves start to fall from the trees. – Winter is the coldest season – Spring is when new plants and leaves begin to grow – Summer is the warmest season – the weather affects what we do and wear e.g. if it is rainy we wear waterproof clothing when we go outside COMMUNICATION, CURIOSITY 	<ul style="list-style-type: none"> – say what differences there are between the four seasons COMMUNICATION – observe and describe weather associated with the seasons and how day length varies – days are longer in the summer and shorter in winter – weather changes through the year, getting hotter in the summer and colder in the winter 	
Key Vocab	<p>outdoors, damp, shady sun, sunny, rain, rainbow, snow, dry, wet, dark season, autumn, spring, summer, winter</p>	<p>Seasons: spring, summer, autumn, winter, seasonal change.</p> <p>Weather: e.g. sun, rain, snow, sleet, frost, ice, fog, cloud, hot/warm, cold, storm, wind, thunder, weather forecast.</p> <p>Measuring weather: temperature, rainfall, wind direction, thermometer, rain gauge.</p> <p>Day length: night, day, daylight.</p>	
Seasons scientific enquiry	<p>Q: How do seasons make the world around me change? Explore the Secret Garden (or playground) and children to describe what they can see, hear, feel and smell whilst outside. Orally explain/record/draw what they can see/observe Answer questions using my observations (e.g. what happens to the weather in Autumn? Which season is the warmest? How does the season and weather affect what we wear?)</p>	<ul style="list-style-type: none"> – observe changes across the 4 seasons COMMUNICATION 	
Plants Key knowledge	<ul style="list-style-type: none"> – Name the parts of a plant: leaf, stem, flower, petal, roots (UW) – Plants need water (UW) CREATIVITY 	<ul style="list-style-type: none"> – identify and name a variety of common wild and garden plants, including deciduous and evergreen trees; – plants are living things and grow CREATIVITY – trees are types of plants – fruit and vegetables grow from plants – plants have a stem/trunk, roots, leaves and flowers (blossom)/fruit CREATIVITY – know trees can be deciduous and evergreen and what this means 	<ul style="list-style-type: none"> – seeds and bulbs grow into mature plants – plants need water, light and a suitable temperature to grow and stay healthy CREATIVITY
Key Vocab	<p>plant, tree, water, seed, grow, growing, grown, sunflower</p>	<p>Names of common plants: wild plant, garden plant, evergreen tree, deciduous tree, common flowering plant, weed, grass.</p> <p>Name some features of plants: e.g. flower, vegetable, fruit, berry, leaf/leaves, blossom, petal, stem, trunk, branch, root, seed, bulb, soil.</p> <p>Name some common types of plant e.g. sunflower, daffodil.</p>	<p>Growth of plants: germination, shoot, seed dispersal, grow, food store, life cycle, die, wilt, seedling, sapling.</p> <p>Needs of plants: sunlight, nutrition, light, healthy, space, air.</p> <p>Name different types of plant: e.g. bean plant, cactus.</p> <p>Names of different habitats: e.g. rainforest, desert.</p> <p>Previously introduced vocabulary: water, temperature, warm, hot, cold, habitat.</p>

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<p>Plants scientific enquiry</p>	<p>Enquiry 1 Q: What plants can I find around me? Explore a variety of different plants in small groups in the secret garden. Children to describe what they see, hear, smell and feel whilst exploring. Children draw/record the different plants in the garden.</p> <p>Enquiry 2 Q: How does a sunflower grow? Plant and grow a sunflower. Observe the changes that occur over time. Use comparative terms to describe these changes e.g. it has grown bigger</p>	<p>Q: Can I identify the parts of a plant? Explore a variety of flowering plants and describe what they can see e.g. leaves, flower, stem as well as adjectives. Label parts of plants.</p>	<p>Q: How do I grow a healthy plant? Investigate the best conditions for growing a bean and compare the needs of growing beans. Answer questions e.g. can a plant grow without sun/water/the right temperature?</p> <p>Keep a diary to record the progress made by all plants (NOTE: Measuring with a ruler must be covered beforehand)</p>
<p>Animals (including humans)</p> <p>Key knowledge</p>	<ul style="list-style-type: none"> – Recognise and name some common woodland animals: hedgehog, squirrel, rabbit, fox, badger etc. (UW) – Describe an animal giving two characteristics e.g. it has feathers and wings. – common UK woodland animals: hedgehog, squirrel, rabbit, fox, badger – common UK farm animals: sheep, cow, chicken, pig, duck, horse 	<ul style="list-style-type: none"> – identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals COMMUNICATION – 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 (fish, amphibians, reptiles, birds 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. COMMUNICATION 	<ul style="list-style-type: none"> – animals, including humans, have babies (offspring) which grow into adults – describe the basic needs of animals, including humans, for survival (water, food and air) COMMUNICATION – the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.
<p>Key Vocab</p>	<p>animal, egg, hatch, chick, chicken, feathers</p>	<p><u>Names of animal groups:</u> fish, amphibians, reptiles, birds, mammals.</p> <p><u>Animal diets:</u> carnivore, herbivore, omnivore.</p> <p><u>Human and animal body parts:</u> e.g. body, head, neck, arms, elbows, legs, knees, face, ears, eyes, nose, hair, mouth, teeth, hands, feet, tail, wings, feathers, fur, beak, fins, gills.</p> <p><u>Human senses:</u> sight, hearing, touch, smell, taste.</p> <p><u>Exploring senses:</u> loud, quiet, soft, rough.</p> <p><u>Other:</u> human, animal, pet</p>	<p><u>Being born and growing:</u> Young, offspring, live young, grow, develop, change, hatch, lay, fly, crawl, talk.</p> <p><u>Young and adult names:</u> e.g. lamb and sheep, kitten and cat, duckling and duck.</p> <p><u>Life cycle stages:</u> e.g. baby, toddler, child, teenager, adult; frogspawn, tadpole, froglet, frog.</p> <p><u>Survival and staying healthy:</u> basic needs, survive, food, air, exercise, diet, nutrition, healthy, balanced diet, hygiene, germs.</p> <p><u>Food groups:</u> fruit and vegetables, proteins, dairy and alternatives, carbohydrates, oil and spreads, fat, salt, sugar.</p> <p>Previously introduced vocabulary: water.</p>
<p>Animals (including humans) scientific enquiry</p>	<p>Q: What happens when the egg hatches? Observe life cycles of animals e.g. eggs hatching to chicks and identify the changes over time. Draw/record the changes that were observed (not into a lifecycle model).</p>	<p>Q: How can we use our senses help us find out about plants? Range of plants to appeal to 4 different senses: hearing, sight, touch and smell. Investigate different plants using senses Ask simple questions stimulated by their exploration of the plants. Present the evidence they have collected in a pictogram to help in answering questions</p> <p>Link to Sensory garden lesson and inventor Tim Smit</p>	<p>Q: How does a tadpole become a frog? Observe life cycles of animals e.g. frogs and identify the changes over time. Draw/record the changes that were observed into a lifecycle model, using the correct vocabulary.</p>
<p>Everyday Materials Key knowledge</p>	<ul style="list-style-type: none"> – when water gets cold enough it freezes and becomes ice. E.g. puddles freezing (UW) – when ice warms up it melts and changes back to water (UW) – some things float and sink (UW) 	<ul style="list-style-type: none"> – distinguish between an object and the material it is made from COMMUNICATION – identify a variety of everyday materials, including wood, plastic, glass, metal, water, and rock COMMUNICATION – describe the simple physical properties of a variety of everyday materials COMMUNICATION 	<ul style="list-style-type: none"> – the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses CURIOSITY – shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

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		– compare and group together a variety of everyday materials on the basis of their simple physical properties. COMMUNICATION CURIOSITY	
Key Vocab	material, melt, cook, heat, made of, float, sink,	<u>Names of materials:</u> wood, plastic, glass, metal, water, rock, paper, cardboard, rubber, fabric. <u>Properties of materials:</u> hard, soft, shiny, dull, stretchy, rough, smooth, bendy, not bendy, transparent, opaque, waterproof, not waterproof, absorbent, not absorbent, sharp, stiff. <u>Other:</u> object.	<u>Changing shape:</u> squash, bend, twist, stretch. <u>Properties of materials:</u> e.g. strong, flexible, rigid, light, hardwearing, elastic. <u>Other:</u> suitability, recycle, pollution.
Everyday materials scientific enquiry	Q: Does all wood sink? <u>Investigate</u> objects that float or sink. Does all wood float?	Q: Can you find a waterproof material? <u>Investigate</u> which materials are waterproof. Umbrella investigation - which material stops the rain coming through? <u>Present my evidence</u> of materials that are waterproof/non-waterproof in a simple table template provided to me Use my findings to <u>answer questions</u> (e.g. what material would be good for an umbrella?)	Q: Which material is the best for absorbing water? <u>Investigate</u> which material is most suitable to make a mop. <u>identify the variables</u> that are relevant to the test of the suitability of materials e.g. type of material Focus on fair test with same amount of water, same size material, and same length of time on material.
Living things and their Habitats Key knowledge	a habitat is a natural place where something lives		– there are differences between things that are living, dead, and things that have never been alive CURIOSITY, CREATIVITY – most living things live in habitats to which they are suited, which means that animals have suitable features that help them move and find food CREATIVITY – different habitats provide for the basic needs of different kinds of animals and plants, – identify and name a variety of plants and animals in their habitats, including microhabitats – within a habitat there are different microhabitats (e.g. in a woodland, the leaf litter or on the bark of trees), which has different conditions (e.g. light / dark, damp / dry) – 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. CURIOSITY – know what a food chain is and understand that the arrows on a food chain show the direction that the energy travels.
Key Vocab	natural environment, living things		<u>Living or dead:</u> living, dead, never living, not living, alive, never been alive, healthy. <u>Habitats including microhabitats:</u> depend, shelter, safety, survive, suited, space, minibeast, air. <u>Life processes:</u> movement, sensitivity, growth, reproduction, nutrition, excretion, respiration. <u>Food chains:</u> food sources, food, producer, consumer, predator, prey. <u>Names of habitats and microhabitats:</u> e.g. under leaves, woodland, rainforest, seashore, ocean, urban, local habitat.

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			Previously introduced vocabulary: senses, carnivore, herbivore, omnivore, seed, water , names of materials.
Living things and their Habitats scientific enquiry	<p>Q: What is living in my local area? Explore an area of the school grounds/local area and identify the animals that are found there</p>		<p>Investigation 1 Q: What is living here? Identify plants and animals in at least one micro-habitat and one larger habitat (ideally somewhere like Avon Heath Country Park or the Secret Garden if more appropriate)</p> <p>Investigation 2 Q: Is it alive? Compare things that are living, dead or have never been alive and use observations to draw conclusions and suggest outcomes of further observations e.g. if a leaf is alive when it is attached to a plant, what about when it is no longer attached? Is a feather alive?</p>
<p>Scientists (sc) and inventors (i)</p> <p>Children as scientists and key inventors.</p>		<ul style="list-style-type: none"> – identify and name a variety of common wild and garden plants, including deciduous and evergreen trees; (sc) – Tim Smit invented the Eden Project (i) – describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets); (sc) – George Mottershead designed Chester Zoo, the first modern zoo in Britain (i) – observe and describe weather associated with the seasons and how day length varies. (sc) – Christopher Wren and Robert Hooke invented a special type of rain gauge (i) – compare and group together a variety of everyday materials on the basis of their simple physical properties; (sc) 	<ul style="list-style-type: none"> – find out and describe how plants need water, light and a suitable temperature to grow and stay healthy; (sc) – Jane Colden was the first woman botanist in America (i) – identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses; (sc) – Charles Macintosh invented waterproof fabric (i)

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Science Unit Overview			
	EYFS	Year 1	Year 2
Autumn 1	Animals (humans) - senses	Animals, including humans – focus on humans	Everyday materials – suitability
Autumn 2	Seasons - autumn	Seasons	Living things and their habitats
Spring 1	Seasons – winter Animals – woodland Materials - Ice and melting	Animals, including humans	Living things and their habitats
Spring 2	Materials - Floating and sinking Seasons	Everyday materials – Properties	Animals, including humans Life cycles - tadpoles
Summer 1	Animals – life cycles, hatching chicks Plants - growing sunflower	Seasons	Plants
Summer 2	Plants - growing sunflower	Plants	Plants