



Science overview

Year	Term	Key Concept	Intent	Nat curriculum objective	Milestones	Essential Characteristics	Vocabulary	Prior Learning
Year 1	Autumn	Structure, working scientifically, similarity and difference,	Year 1 will become familiar with a range of materials and their simple physical properties, This learning links to previous learning in Early Years where children learnt about materials by looking closely at similarities, differences, patterns and change. Children will compare, contrast and identify materials building on their knowledge of their physical properties.	<u>Everyday materials</u> 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 Identifying and classifying Pattern seeking	<ul style="list-style-type: none"> know the name of objects and identify the materials it is made from name and identify everyday materials Describe the properties of materials Compare the similarities and differences and sort by criteria 	<ul style="list-style-type: none"> The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings. Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations. 	object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through	<ul style="list-style-type: none"> Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.
Year 1	Throughout year	Structure, working scientifically, similarity and difference	Year 1 will understand what causes seasonal changes, day and night. This learning links to learning that took place in Early Years where the children are encouraged to comment and ask questions about aspects of their familiar worlds such as the place where they live or	<u>Seasonal changes</u> Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies Pattern seeking Observing over time	<ul style="list-style-type: none"> Observe and describe different weathers Know the names of types of weather and which seasons to expect them during (including day length) 	<ul style="list-style-type: none"> The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings. Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations. The ability to undertake practical work in a variety of contexts, including fieldwork. 	weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, rainbow, seasons, winter, summer, spring, autumn, Sun, sunrise, sunset, day length	<ul style="list-style-type: none"> Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.



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			the natural world. The children will be able to build on previous learning through observation and change over time as well as pattern seeking.					
Year 1	Summer	Structure, working scientifically, similarity and difference	Year 1 will become familiar with different types of plants through the skill of identifying and classifying. They will use observation skills over time to see how plants grow. This learning builds on their learning in Early Years where the children make observations of plants and explain why some things occur, and talk about changes.	<u>Plants</u> Pupils should be taught to - 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 Identifying and classifying Secondary sources	<ul style="list-style-type: none"> Know the names of different types of plants Know the parts of different types of plants 	<ul style="list-style-type: none"> The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings. Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations. Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings. High levels of originality, imagination or innovation in the application of skills. The ability to undertake practical work in a variety of contexts, including fieldwork. A passion for science and its application in past, present and future technologies. 	leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, names of trees in the local area, names of garden and wild flowering plants in the local area	<ul style="list-style-type: none"> Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.
Year 1	Spring	working scientifically, similarity and difference, processes	Year 1 will become familiar with different types of animals and the life processes they share by identifying and naming different common animals.	<u>Animals including humans</u> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals	<ul style="list-style-type: none"> Know different types of animals Group and describe animals by carnivores, 	<ul style="list-style-type: none"> The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings. Confidence and competence in the full range of practical 	head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, names of animals experienced	<ul style="list-style-type: none"> Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how



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			<p>This learning links to previous learning in Early years where the children make observations of animals and explain why some things occur, and talk about changes. The children will use the working scientifically skills of identifying and classifying as well as pattern seeking</p>	<p>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</p> <p>Identifying and classifying Secondary sources Pattern seeking Fair and comparative testing</p>	<p>herbivores and omnivores</p> <ul style="list-style-type: none"> • Compare the similarities and differences and sort by criteria • Identify and associate body parts and senses 	<p>skills, taking the initiative in, for example, planning and carrying out scientific investigations.</p> <ul style="list-style-type: none"> • Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings. • High levels of originality, imagination or innovation in the application of skills. • The ability to undertake practical work in a variety of contexts, including fieldwork. • A passion for science and its application in past, present and future technologies. 	<p>first-hand from each vertebrate group, mammal, fish, amphibian, bird, reptile, parts of the human body including those within the school's PSHE scheme, senses, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ears, tongue</p>	<p>environments might vary from one another.</p> <ul style="list-style-type: none"> • They make observations of animals and plants and explain why some things occur, and talk about changes.
Year 2	Autumn	variation, adaptation, changes, working scientifically, similarity and difference, process	<p>Year Two will build on the learning from Year One by becoming familiar with a range of materials, their properties, uses and how they may be altered or changed through comparison and fair testing. This will involve investigating why different materials are chosen for their purpose through</p>	<p><u>Everyday materials</u> 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.</p>	<ul style="list-style-type: none"> • Compare and group together a variety of everyday materials on the basis of their simple physical properties. • Find out how the shapes of solid objects made from some materials can be changed 	<ul style="list-style-type: none"> • Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations. • Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings. • High levels of originality, imagination or innovation in the application of skills. 	<p>opaque, transparent, translucent, reflective, non-reflective, flexible, rigid, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching</p>	<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, 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



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			identifying and classifying and how some materials can change through the use of force while others remain the same therefore developing pattern seeking skills	Identifying and classifying Pattern seeking		<ul style="list-style-type: none"> The ability to undertake practical work in a variety of contexts, including fieldwork. A passion for science and its application in past, present and future technologies. 		basis of their simple physical properties
Year 2	Spring	variation, adaptation, growth, working scientifically, similarity and difference, process	Year Two will become familiar with different types of animals, humans and the life processes they share building on from their Year One learning of being able to identify and name animals and investigating the basic needs these animals need to survive. They will use the working scientifically skills of identifying and classifying and through fair testing, pattern seeking and research will learn why it is important to eat a balanced diet, to exercise and to be hygienic to remain healthy	<u>Animals including humans</u> Children to understand 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. Secondary sources Pattern seeking	<ul style="list-style-type: none"> Identifies and discusses basic needs for living Understand that animals and adults grow up into adults Discusses why we should exercise, eat healthily and the importance of good hygiene 	The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings. <ul style="list-style-type: none"> Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations. Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings. 	reproduction, growth, baby, toddler, child, teenager, adult, old person, names of animals and their babies (e.g. chick/chicken, kitten/cat, caterpillar/butterfly), survive, survival, water, food, air, exercise, heartbeat, breathing	<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 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
Year 2	Summer	Structure, working scientifically, similarity and difference,	Year Two will build on the learning from Year One where they were introduced to different types of plants through	<u>Plants</u> Observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a	<ul style="list-style-type: none"> Identify and describe the basic structure of a variety of common flowering plants, 	<ul style="list-style-type: none"> The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings. Confidence and competence in the full range of 	light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling	<ul style="list-style-type: none"> Pupils should be taught to - 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





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			<p>identifying and classifying and will be able to link the structure of plants to this. They will use the observational skills that they learnt in Year One, to be able to understand all of the conditions a plant also needs to grow to enable it to be healthy and stay that way. They could use pattern seeking, fair testing, identifying and classifying and observation over time in order to achieve this.</p>	<p>suitable temperature to grow and stay healthy.</p> <p>Observing over time Identifying and classifying Fair and comparative testing.</p>	<p>including roots, stem/trunk, leaves and flowers. • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>practical skills, taking the initiative in, for example, planning and carrying out scientific investigations</p>		<p>of common flowering plants, including trees</p>
Year 2	Summer	<p>variation, adaptation, growth, working scientifically, similarity and difference, process</p>	<p>Year Two will become familiar with a wider range of living things, including insects and understanding life processes and the habitats they need to survive. This builds on the learning in Year One where the children identified and named different common animals. Year Two will learn the criteria needed for something to be alive and how in order to remain alive it needs food</p>	<p><u>Living things and habitats</u> 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</p>	<p>Explore and compare the differences between things that are living, that are dead and 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</p>	<p>• The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings. • Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations • Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings. • High levels of originality, imagination or innovation in the application of skills.</p>	<p>living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, names of local habitats (e.g. pond, woodland etc.), names of micro-habitats (e.g. under logs, in bushes etc.), conditions, light, dark, shady, sunny, wet, damp, dry, hot, cold, names of living things in the habitats and micro-habitats studied</p>	<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 • 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






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			that is obtained through various food sources. They could use the skills of identifying and classifying as well as research and pattern seeking to do this	microhabitats Describe how animals obtain their food from Identifying and classifying	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.	• The ability to undertake practical work in a variety of contexts, including fieldwork.		
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Working Scientifically	<i>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:</i>	
	<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. 	
	Year 1	Year 2
Observing over time 	<ul style="list-style-type: none"> • Measure time (seconds, minutes, hours, days). • Record observations as scientific drawings and labelled features. • Use magnifying glasses to label scientific drawings. 	<ul style="list-style-type: none"> • Use appropriate senses, aided by equipment (magnifying glasses/microscopes), to make observations. • Measure time in seconds, minutes, hours, days and also measure a variety of variables that are observed, such as, temperature, light levels. • Record observations using scientific drawings and tables. • Use microscopes to label scientific drawings.
Identifying and classifying 	<ul style="list-style-type: none"> • Use simple equipment to observe closely. • Make observations and measurements to look for similarities and differences. • Organise into groups and make connections. • Classify using simple prepared tables and sorting rings. • Explore the world around them making careful observations to support identification, comparison and noticing change. • Use magnifying glasses and digital microscope to observe closely. 	<ul style="list-style-type: none"> • Talk about similarities and differences backed up by discussions about observations and measurements. • Use observations and testing to compare objects, materials and living things. Sort and group these things, identifying their own criteria for sorting. • Use simple secondary sources to name living things. Describe the characteristics they used to identify a living thing. • Use digital microscope and microscopes to observe closely.



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<p>Pattern seeking</p> 	<ul style="list-style-type: none"> Describe patterns orally. Begin to take measurements, initially by comparisons, then using non-standard units. Record observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. Recognise 'biggest and smallest', 'best and worst' etc. from data. Use a timer to measure time. 	<ul style="list-style-type: none"> Use observations and ideas to suggest answers to questions noticing similarities, differences and patterns. Begin to describe patterns in written work. Take measurements and record using standard units to compare. Record measurements e.g. using prepared tables, pictograms, tally charts and block graphs. Discuss cause and effect relationships. Use a stopwatch to measure time.
<p>Researching</p> 	<ul style="list-style-type: none"> Ask simple questions and recognise that they can be answered in different ways. Answer questions developed with the teacher often through a scenario. Present research findings as a group/class. 	<ul style="list-style-type: none"> Ask simple questions and recognise that they can be answered in different ways including use of scientific language. While exploring the world, develop their ability to ask questions (i.e. what something is, how things are similar and different, the ways things work, how things change). Where applicable, they answer these questions. Plan how to use resources provided to answer the questions using different types of enquiry. Suggest appropriate answers to questions, from experiences. With support relate these to evidence (i.e. observations they have made, measurements they have taken or information from secondary sources). Read for information and note down key facts.
<p>Fair/comparative testing</p> 	<ul style="list-style-type: none"> Perform simple tests. Compare different situations. Measure and collect data. 	<ul style="list-style-type: none"> Compare different cases/situations. Measure and collect data. Use tally charts to record observations.

Year-group(s)	Vocabulary/Statement(s)
Nursery & Reception	look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group
Years 1 & 2	observe, changes, patterns, grouping, sorting, compare, same, different, identify (name), measure, data, record results, drawing, picture, table, tally chart, present, pictogram, block chart, Venn diagram, ask questions, test, investigate, explore, equipment, resources, magnifying glass, hand lens, ruler, tape measure, metre stick, pipette, syringe, spoon, teaspoon, answer questions, interpret results, scientific enquiry, pattern seeking, comparative testing, observing over time, classifying, researching using secondary sources