

Below the Science Curriculum has been broken into 3 essential strands which are covered across the school, across the years.

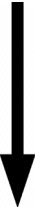
Scientific Knowledge & Understanding

Science Enquiry & Working Scientifically

Uses & Implications of Science today and for the future

E Y F S			Reception
	Development Matters Content		<p>Learn new vocabulary</p> <p>Articulate their ideas in well thought out sentences</p> <p>Explore the natural world around them, making observations and drawing pictures of animals and plants; (ELG)</p> <p>Explore the natural world around them. (ELG)</p> <p>Recognise some environments are similar and some are different to the one in which they live. (ELG)</p> <p>Draw on experiences and stories which have been shared (ELG)</p> <p>Describe what they see, hear and feel whilst outside</p> <p>Understand the effect of changing seasons on the natural world around them. (ELG)</p>
	Specific content		<p>Identify new vocabulary before planning activities, for example, changes in materials: 'dissolving', 'drying', 'evaporating'</p> <p>Bring in objects, pictures and photographs to talk about, for example vegetables to taste, smell and feel.</p> <p>Discuss which category the word is in, for example: "A cabbage is a kind of vegetable. It's a bit like a sprout but much bigger".</p> <p>Ask open questions - "How did you make that? Why does the wheel move so easily? What will happen if you do that?"</p> <p>Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and</p>

			<p>hear the natural world around them during hands-on experiences.</p> <p>Create opportunities to discuss how we care for the natural world around us. Offer opportunities to sing songs and join in with rhymes and poems about the natural world.</p> <p>After close observation, draw pictures of the natural world, including animals and plants.</p> <p>Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water.</p> <p>Name and describe some plants and animals children are likely to see, encouraging children to recognise familiar plants and animals whilst outside.</p> <p>Share non-fiction texts that offer an insight into contrasting environments.</p> <p>Guide children's understanding of seasons and weather by drawing children's attention to the weather and seasonal features.</p>
Subject Voc		<p><u>Senses</u> touch, smell, hear, taste, see, look, season, weather, rainy, sunny, windy, cold, hot, outside, nature, colours, animals, dirty, muddy,</p> <p><u>Changes of state</u> dissolve, dry, wet,</p>	<p><u>Changes of state (food)</u> cook, cool, heat, melt, freeze</p> <p><u>Growing (humans)</u> Animal, alive, worm, Names of plants and animals, caterpillar, chick, egg, insect, spider, adult, baby</p> <p><u>Growing (plant)</u> Plant, flower, stem, growing, water,</p> <p><u>Forces</u> Sink, float, stretch, snap, bend,</p>

<p>Year 1</p> 	<p>NC Content</p>	<p><u>Seasonal Change</u></p> <p>Observe changes across the 4 seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies</p> <p>Asking simple questions and recognising that they can be answered in different ways</p> <p>Observing closely, using simple equipment</p> <p>Observations of the seasons and the weather will take place across the whole year, but the specific content &amp; vocabulary teaching around day length, naming seasons etc. will take place here.</p>	<p><u>Everyday materials</u></p> <p>Distinguish between an object and the material from which it is made</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</p> <p>Describe the simple physical properties of a variety of everyday materials</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties</p> <p><u>Seasonal change</u></p> <p>Asking simple questions and recognising that they can be answered in different ways</p> <p>Performing simple tests</p> <p>Using their observations and ideas to suggest answers to questions</p> <p>Gathering and recording data to help in answering questions</p>	<p><u>Plants</u></p> <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees</p> <p><u>Seasonal change - new season &amp; how seasons affect plants</u></p> <p>Identifying and classifying</p>	<p><u>Animals including Humans</u></p> <p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)</p> <p>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><u>Seasonal change - new season &amp; how seasons affect animals' behaviour</u></p> <p>Identifying and classifying</p>
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	<p><b>Specific content</b></p>	<p>Can name the four seasons and identify when in the year they occur</p> <p>Can describe weather in different seasons over a year Can describe days as being longer (in time) in the summer and shorter in the winter</p> <p>Can describe other features that change through the year</p> <p>Present this information in tables and charts to compare the weather across the seasons.</p> <p>Collect information, regularly throughout the year, of features that change with the seasons e.g. plants, animals, humans.</p> <p>Demonstrate their knowledge in different ways e.g. making a weather forecast video, writing seasonal poetry, creating seasonal artwork</p>	<p>Classify objects made of one material in different ways e.g. texture, what it would be used for, appearance etc.</p> <p>Classify in different ways one type of object made from a range of materials e.g. a collection of spoons made of different materials.</p> <p>Classify materials based on their properties.</p> <p>Test the properties of objects e.g. absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproofness of shelters. They should work scientifically to explore the answers to questions such as: What is the best materia for an umbrella? For lining a dog basket? For curtains? For a gymnast's leotard?</p>	<p>Children to use Identification Sheets (lots available on Woodland Trust). Children need to look at actual plants and trees in the school grounds &amp; local area, not just pictures.</p> <p>Make close observation of real leaves, seeds, flowers etc. and compare them. Classify leaves, seeds, flowers etc. using a range of characteristics.</p> <p>Identify plants by matching them to named images.</p> <p>Make observations of how plants change over a period of time.</p> <p>Spot plants that are the same as those in the local area studied regularly, describing the key features that helped them be identified.</p> <p>Where possible, children should observe the growth of flowers and vegetables they have planted themselves.</p>	<p>Make first-hand, close observations of animals from each of the groups - if possible to see real animals, if not then observe from diagrams.</p> <p>Compare two animals from the same or different groups.</p> <p>Classify animals using a range of features.</p> <p>Identify animals by matching them to named images.</p> <p>Classify animals according to what they eat.</p> <p>Make first-hand close observations of parts of the body e.g. hands, eyes. Learn the names through games, songs &amp; rhymes.</p> <p>Compare two people in the class by taking measurements and comparing them to their own body.</p> <p>Look for patterns between people e.g. Do people with big hands have big feet? Investigate human senses e.g. Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Which smells can I match?</p>
	<p><b>Subject Vocab</b></p>	<p>Weather (sunny, rainy, windy, snowy etc.) Seasons (winter, summer, spring, autumn) Sun, sunrise, sunset, day, day length, year</p> <p>Measure, describe, present, collect, observe</p>	<p>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</p> <p>Classify, material, texture, appearance, object, property</p>	<p>Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, evergreen, deciduous, growth</p> <p>Names of trees in the local area Names of garden and wild flowering plants in the local area.</p> <p>Identify, characteristic, feature, observe, regular</p>	<p>Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, carnivore, herbivore, omnivore, hibernation Names of animals - amphibian, reptile, mammal, bird, fish</p> <p>Senses - touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue Identify, compare, investigate, observe, features, characteristic</p>

<p>Year 2</p> 	<p>NC Content</p>	<p><u>Animals including humans</u></p> <p>Notice that animals, including humans, have offspring which grow into adults</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p> <p>Identifying and classifying</p> <p>Asking simple questions and recognising that they can be answered in different ways</p>	<p><u>Living Things &amp; Their Habitats</u></p> <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 provide for the basic needs of different kinds of animals and plants, and how they depend on each other</p> <p>Identify and name a variety of plants and animals in their habitats, including microhabitats</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>Identifying and classifying</p>	<p><u>Plants</u></p> <p>Observe and describe how seeds and bulbs grow into mature plants</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p> <p>Identifying and classifying</p> <p>Observing closely, using simple equipment</p>	<p><u>Uses of everyday materials</u></p> <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p> <p>Asking simple questions and recognising that they can be answered in different ways</p> <p>Performing simple tests</p> <p>Observing closely, using simple equipment</p> <p>Using their observations and ideas to suggest answers to questions</p> <p>Gathering and recording data to help in answering questions</p>
	<p>Specific content</p>	<p>Ask people questions and use secondary sources to find out about the life cycles of some animals.</p> <p>Observe animals growing over a period of time e.g. chicks, caterpillars, a baby.</p> <p>Ask questions of a parent about how they look after their baby.</p> <p>Ask pet owners questions about how they look after their pet.</p> <p>Explore the effect of exercise on their own bodies.</p> <p>Classify food in a range of ways, including using the Eatwell Guide</p>	<p>Explore the outside environment regularly to find objects that are living, dead and have never lived.</p> <p>Classify objects found in the local environment.</p> <p>Observe animals and plants carefully, drawing and labelling diagrams.</p> <p>Create simple food chains for a familiar local habitat from first-hand observation and research.</p> <p>Create simple food chains from information given e.g. in picture books (Gruffalo etc.)</p> <p>Can explain in simple terms why an animal or plant is suited to a habitat e.g. the caterpillar cannot live under the soil</p>	<p>Make close observations of seeds and bulbs.</p> <p>Classify seeds and bulbs.</p> <p>Research and plan when and how to plant a range of seeds and bulbs.</p> <p>Look after the plants as they grow - weeding, thinning, watering etc.</p> <p>Make close observations and measurements of their plants growing from seeds and bulbs.</p> <p>Make comparisons between plants as they grow</p>	<p>Classify materials.</p> <p>Make suggestions about alternative materials for a purpose that are both suitable and unsuitable</p> <p>Test the properties of materials for particular uses e.g. compare the stretchiness of fabrics to select the most appropriate for a superhero costume, test materials for waterproofness to select the most appropriate for a rain hat/umbrella, test the absorbency of different brands of baby's nappies as an investigation for a supermarket.</p>

	<p>Investigate washing hands, using glitter gel.</p> <p>Create a life cycle book for a younger child</p> <p>Show what they know about looking after an animal by creating a pet owners' guide.</p>	<p>like a worm as it needs fresh leaves to eat; the seaweed we found on the beach cannot live in our pond because it is not salty</p>		
Subject Voc	<p>Offspring, survival, life cycle, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples - meat, fish, vegetables, bread, rice, pasta)</p> <p>Investigate, question</p>	<p>Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, habitat, food chain</p> <p>Names of local habitats e.g. pond, woodland etc.</p> <p>Names of micro-habitats e.g. under logs, in bushes etc.</p> <p>Explore, classify, similar, different</p>	<p>As for Year 1 plant vocabulary plus:</p> <p>light, shade, sun, warm, cool, water, grow, healthy</p> <p>Compare, comparisons, similarities, differences, observe</p>	<p>Names of materials - wood, metal, plastic, glass, brick, rock, paper, cardboard</p> <p>Properties of materials - as for Year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid</p> <p>Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching</p> <p>Uses, purposes, test, suggest, data, record, results</p>

<p>Year 3</p> 	<p>NC Content</p>	<p><u>Animals Including Humans</u> Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes</p> <p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p>	<p><u>Forces &amp; Magnets</u> Compare how things move on different surfaces</p> <p>Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance</p> <p>Observe how magnets attract or repel each other and attract some materials and not others</p> <p>Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</p> <p>Describe magnets as having 2 poles</p> <p>Predict whether 2 magnets will attract or repel each other, depending on which poles are facing</p> <p>Asking relevant questions and using different types of scientific enquiries to answer them</p> <p>Setting up simple practical enquiries, comparative and fair tests</p> <p>Making systematic and careful observations.</p> <p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p>	<p><u>Rocks</u></p> <p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>Recognise that soils are made from rocks and organic matter</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes</p> <p>Asking relevant questions and using different types of scientific enquiries to answer them</p> <p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p>	<p><u>Plants</u> Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</p> <p>Investigate the way in which water is transported within plants</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p> <p>Setting up simple practical enquiries, comparative and fair tests</p> <p>Making systematic and careful observations.</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>	<p><u>Light</u> Recognise that they need light in order to see things and that dark is the absence of light</p> <p>Notice that light is reflected from surfaces</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>Recognise that shadows are formed when the light from a light source is blocked by an opaque object</p> <p>Find patterns in the way that the size of shadows change</p> <p>Asking relevant questions and using different types of scientific enquiries to answer them</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>Using straightforward scientific evidence to answer questions or to support their findings.</p>
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<p>Specific content</p>	<p>Use food labels to explore the nutritional content of a range of food items. Identify similarities &amp; differences</p> <p>Find out the types of food that contain the different nutrients.</p> <p>Use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain? How much sugar is in soft drinks? Gather &amp; record data in charts, tables &amp; graphs.</p> <p>Plan a daily diet to contain a good balance of nutrients.</p> <p>Explore the nutrients contained in fast food.</p> <p>Research the parts and functions of the skeleton.</p> <p>Investigate patterns asking questions such as: Can people with longer legs run faster? Can people with bigger hands catch a ball better?</p> <p>Compare, contrast and classify skeletons of different animals.</p>	<p>Carry out investigations to explore how objects move on different surfaces e.g. spinning tops/coins, rolling balls/cars, clockwork toys, soles of shoes etc.</p> <p>Explore what materials are attracted to a magnet. Make predictions and then gather data in order to plan further tests.</p> <p>Classify materials according to whether they are magnetic.</p> <p>Use a marked magnet to find the unmarked poles on other types of magnets.</p> <p>Explore how magnets work at a distance e.g. through the table, in water, jumping paper clips up off the table.</p> <p>Devise an investigation to test the strength of magnets and then use the data to rank them in order of strength. Record data in tables or graphs..</p>	<p>Classify rocks in a range of ways, based on their appearance. Identify similarities &amp; differences.</p> <p>Devise a test to investigate how much water different rocks absorb.</p> <p>Gather &amp; record data and present in tables, charts or graphs.</p> <p>Observe how rocks change over time e.g. gravestones or old buildings.</p> <p>Research how fossils are formed.</p> <p>Classify soils in a range of ways based on their appearance and absorbency.</p> <p>Observe how soil can be separated through sedimentation.</p> <p>Research the work of Mary Anning on fossils.</p>	<p>Observe what happens to plants over time when the leaves or roots are removed.</p> <p>Observe the effect of putting cut white carnations or celery in coloured water.</p> <p>Investigate what happens to plants when they are put in different conditions e.g. in darkness, in the cold, deprived of air, different types of soil, different fertilisers, varying amounts of space. Use the results to draw conclusions about what plants need to survive.</p> <p>Spot flowers, seeds, berries and fruits outside throughout the year. Identify similarities &amp; differences.</p> <p>Carefully observe flowers to identify the pollen. Observe flowers being visited by pollinators e.g. bees and butterflies in the summer.</p> <p>Observe seeds being blown from the trees e.g. sycamore seeds. Research different types of seed dispersal.</p> <p>Draw and label a diagram of a flowering plant to show its parts, their role and the method of pollination.</p>	<p>Explore how different objects are more or less visible in different levels of lighting.</p> <p>Explore how objects with different surfaces (e.g. shiny vs matt) are more or less visible. Investigate the role of reflectors in road safety.</p> <p>Explore how shadows vary as the distance between a light source and an object or surface is changed. Record data in graphs or tables.</p> <p>Explore shadows which are connected to and disconnected from the object e.g. shadows of clouds and children in the playground.</p> <p>Investigate how shadows change throughout the day or choose suitable materials to make shadow puppets.</p> <p>Create artwork using shadows.</p>
<p>Subject Voc</p>	<p>Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, bicep,</p>	<p>Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet,</p>	<p>Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk,</p>	<p>Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal),</p>	<p>Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous</p>



		tricep, joints, support, protect, move, bone, skull, ribs, spine Compare, contrast, enquiry, similarities, differences, plan, record	horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole Rank, order, predict, devise, explanation	granite, sandstone, slate, soil, peat, sandy/chalk/clay soil  Observe, research, change, data, conclusion	leaf, root, stem, transport, water, nutrients  Diagram, fair, accurate	Diagram, chart, table, explanation, drawing conclusions
Year 4 	NC Content	<p><u>Living Things &amp; Their Habitats</u> Recognise that living things can be grouped in a variety of ways</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes</p>	<p><u>Animals Including Humans</u> Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes</p>	<p><u>States of Matter</u> Compare and group materials together, according to whether they are solids, liquids or gases</p> <p>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p> <p>Asking relevant questions and using different types of scientific enquiries to answer them</p> <p>Setting up simple practical enquiries, comparative and fair tests</p> <p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p>	<p><u>Sound</u> Identify how sounds are made, associating some of them with something vibrating</p> <p>Recognise that vibrations from sounds travel through a medium to the ear</p> <p>Find patterns between the pitch of a sound and features of the object that produced it</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>Recognise that sounds get fainter as the distance from the sound source increases</p> <p>Asking relevant questions and using different types of scientific enquiries to answer them</p> <p>Setting up simple practical enquiries, comparative and fair tests</p> <p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of</p>	<p><u>Electricity</u> Identify common appliances that run on electricity</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductors</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>Using straightforward scientific evidence to answer questions or to support their findings.</p>

				<p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes</p>	<p>equipment, including thermometers and data loggers</p> <p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p>	
Specific content	<p>Compare and contrast the living things observed.</p> <p>Use classification keys to name unknown living things.</p> <p>Classify living things found in different habitats based on their features.</p> <p>Create a simple identification key based on observable features.</p> <p>Use fieldwork to explore human impact on the local environment e.g. litter, tree planting.</p> <p>Use secondary sources to find out about how environments may naturally change.</p> <p>Use secondary sources to find out about human impact, both positive and negative, on environments.</p>	<p>Create a model of the digestive system using household objects.</p> <p>Explore eating different types of food to identify which teeth are being used for cutting, tearing and grinding (chewing).</p> <p>Classify animals as herbivores, carnivores or omnivores according to the type of teeth they have in their skulls.</p> <p>Identify similarities &amp; differences.</p> <p>Use food chains to identify producers, predators and prey within a habitat.</p> <p>Use diagrams or a model to describe the journey of food through the body explaining what happens in each part</p> <p>Record the teeth in their mouth (make a dental record).</p>	<p>Observe closely and classify a range of solids and liquids</p> <p>Explore making gases visible e.g. squeezing sponges underwater to see bubbles, and showing their effect e.g. using straws to blow objects, trees moving in the wind.</p> <p>Classify materials according to whether they are solids, liquids and gases.</p> <p>Observe a range of materials melting e.g. ice, chocolate, butter. Identify similarities &amp; differences.</p> <p>Set up simple enquiries to test things such as how to melt ice quickly. Make predictions and record findings.</p> <p>Observe the changes when making cooking.</p> <p>Investigate the melting point of different materials e.g. ice, margarine, butter and chocolate.</p>	<p>Explore making sounds with a range of objects, such as musical instruments and other household objects.</p> <p>Explore how string telephones work.</p> <p>Explore altering the pitch or volume of objects, such as the length of a guitar string, amount of water in bottles, size of tuning forks.</p> <p>Measure sounds over different distances.</p> <p>Measure sounds through different insulation materials.</p> <p>Explain what happens when you strike a drum or pluck a string and use a diagram to show how sounds travel from an object to the ear</p> <p>Demonstrate how to increase or decrease pitch and volume.</p> <p>Report findings from various investigations, using formal explanations backed up with</p>	<p>Construct a range of circuits.</p> <p>Explore which materials can be used instead of wires to make a circuit.</p> <p>Classify the materials that were suitable/not suitable for wires - use the results to define conductors and insulators. Back up explanations with simple scientific evidence.</p> <p>Explore how to connect a range of different switches and investigate how they function in different ways.</p> <p>Choose switches to add to circuits to solve particular problems, such as a pressure switch for a burglar alarm.</p> <p>Apply their knowledge of conductors and insulators to design and make different types of switch.</p> <p>Make circuits that can be controlled as part of a DT project.</p> <p>Note: Children in Year 4 <b>do not</b> need to use standard symbols for electrical components, as this is taught in Year 6.</p>	

				<p>Explore freezing different liquids e.g. tomato ketchup, oil, shampoo.</p> <p>Use a thermometer to measure temperatures e.g. icy water (melting), tap water, hot water, boiling water (demonstration). Observe water evaporating and condensing e.g. on cups of icy water and hot water.</p> <p>Set up investigations to explore changing the rate of evaporation</p> <p>Find out about the water cycle.</p>	<p>scientific evidence, diagrams, charts and tables.</p>	
Subject Voc	<p>Environment, habitat, human impact, positive, negative, migrate, hibernate, natural cause</p> <p>Classification, classification keys, primary &amp; secondary sources, change</p>	<p>Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain</p> <p>Diagram, record, model, explain, describe</p>	<p>Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle</p> <p>Enquiry, systematic observations, data logger, thermometer, equipment, fair, accurate, readings</p>	<p>Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation, increase, decrease</p> <p>Measure, alter, predict, change, effect, affect</p>	<p>Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol</p> <p>Measure, explore, trial, improve, effective</p>	

<p>Year 5</p> 	<p>NC Content</p>	<p><u>Living Things &amp; Their Habitats</u> Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p>Describe the life process of reproduction in some plants and animals</p> <p>Recording data and results of increasing complexity using scientific diagrams and labels.</p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments</p>	<p><u>Properties &amp; Changes of Materials</u> Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</p> <p>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda</p> <p>Planning different types of scientific enquiries to answer questions, including</p>	<p><u>Forces</u> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</p> <p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>Using test results to make predictions to set up further comparative and fair tests</p> <p>Reporting and presenting findings from enquiries,</p>	<p><u>Earth &amp; Space</u> Describe the movement of the Earth and other planets relative to the sun in the solar system</p> <p>Describe the movement of the moon relative to the Earth</p> <p>Describe the sun, Earth and moon as approximately spherical bodies</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</p> <p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments</p>	<p><u>Animals including Humans</u> Describe the changes as humans develop to old age</p> <p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments</p>
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Specific content	<p>Present their understanding of the life cycle of a range of animals in different ways e.g. drama, pictorially, chronological reports, creating a game</p> <p>Identify patterns, similarities &amp; differences in life cycles</p> <p>Compare two or more animal life cycles they have studied - <b>not</b> humans as human changes and reproduction will be covered as part of PSHE/RSE/Animals including Humans topic later in the school year.</p> <p>Explain how a range of plants reproduce asexually e.g. strawberries</p>	<p>Investigate the properties of different materials in order to recommend materials for particular functions depending on these properties e.g. test waterproofness and thermal insulation to identify a suitable fabric for a coat.</p> <p>Create a chart or table grouping/comparing everyday materials by different properties</p> <p>Explore adding a range of solids to water and other liquids e.g. cooking oil, as appropriate.</p> <p>Investigate rates of dissolving by carrying out comparative and fair tests.</p> <p>Separate mixtures by sieving, filtering and evaporation, choosing the most suitable</p>	<p>Investigate the effect of friction in a range of contexts e.g. trainers, bathmats, mats for a helter-skelter.</p> <p>Investigate the effects of water resistance in a range of contexts e.g. dropping shapes through water and pulling shapes, such as boats, along the surface of water.</p> <p>Investigate the effects of air resistance in a range of contexts e.g. parachutes, spinners, sails on boats.</p> <p>Explore how levers, pulleys and gears work e.g. in factories, machines, bikes</p> <p>Make a product that involves a lever, pulley or gear (as a class).</p> <p>Research how the work of scientists such as Galileo Galilei and Isaac Newton</p>	<p>Create a model e.g. role play or using balls to show the movement of the Earth around the Sun and the Moon around the Earth.</p> <p>Use diagrams and make a model to show why day and night occur.</p> <p>Make first-hand observations of how shadows caused by the Sun change through the day.</p> <p>Make a sundial.</p> <p>Research time zones.</p> <p>Consider the views of scientists in the past and evidence used to deduce shapes and movements of the Earth, Moon and planets before space</p>	<p>This needs to be taught alongside PSHE. The new statutory requirements for relationships and health education can be found here: <a href="#">statutory guidance on Physical health and mental wellbeing (primary and secondary)</a>.</p> <p>Other useful guidance includes: <a href="#">Joint briefing on teaching about puberty in KS2 from PHSE Association and Association for Science Education</a></p> <p><a href="#">Briefing on human's development and reproduction in the Primary Curriculum from PHSE Association and Association for Science Education.</a></p>	

		Compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after birth.	method and equipment for each mixture. Explore a range of non-reversible changes e.g. rusting, adding fizzy tablets to water, burning. Carry out comparative and fair tests involving non-reversible changes. Research new materials produced by chemists e.g. Spencer Silver (glue of sticky notes) and Ruth Benerito (wrinkle free cotton).	helped to develop the theory of gravitation.	travel, including flat Earth theorists.	Can explain the changes that takes place in boys and girls during puberty  Can explain how a baby changes physically as it grows, and also what it is able to do (could use line graphs for development over time)  Can present information about the changes occurring during puberty as an information leaflet for other Y5 children or answers to 'problem page questions'
	Subject Voc	Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings  Compare, explain, identify, pattern, similarity, difference, relation, relationship, support, refute, argument	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material Validity, evidence, relationship, prediction, repeat, record, identify, accurate, fair, present	Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears, heavier, lighter  Observations, comparative, graphs, patterns, relationships, evidence, trust in results, repeat readings	Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets  Model, example, represent, refute, support, theory, theorists, argue	Puberty - the vocabulary to describe sexual characteristics development. See PSHE guidance.  Change, develop, present, developmental stages, plot, data, graph, expected
Year 6 	NC Content	<u>Animals including Humans</u> Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood  Recognise the impact of diet, exercise, drugs and	<u>Living Things &amp; Their Habitats</u> Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals	<u>Evolution &amp; Inheritance</u> Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago  Recognise that living things produce offspring of the same	<u>Light</u> Recognise that light appears to travel in straight lines  Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye	<u>Electricity</u> Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit  Compare and give reasons for variations in how components function, including the brightness of

	<p>lifestyle on the way their bodies function</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans</p> <p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>Using test results to make predictions to set up further comparative and fair tests</p>	<p>Give reasons for classifying plants and animals based on specific characteristics</p> <p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys</p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments</p>	<p>kind, but normally offspring vary and are not identical to their parents</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations</p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments</p>	<p>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</p> <p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>Recording data and results of increasing complexity using scientific diagrams and labels, tables, scatter graphs, bar and line graphs</p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations</p>	<p>bulbs, the loudness of buzzers and the on/off position of switches</p> <p>Use recognised symbols when representing a simple circuit in a diagram</p> <p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p>
Specific content	<p>Create a model for the circulatory system.</p> <p>Carry out a range of pulse rate investigations, take measurements, make predictions and set up further tests:</p>	<p>Learn about the formal classification system devised by Carl Linnaeus and why it is important.</p> <p>Use first-hand observation to identify characteristics shared by the animals in a group to classify them.</p>	<p>Design a new plant or animal to live in a particular habitat.</p> <p>Use diagrams models to demonstrate evolution e.g. 'Darwin's finches' bird beak activity.</p> <p>Find out about how the population of peppered moths</p>	<p>Explore different ways to demonstrate that light travels in straight lines e.g. shining a torch down a bent and straight hose pipe, shining a torch through different shaped holes in a card.</p> <p>Explore the uses of the behaviour of light, reflection and shadows, such as in</p>	<p>Explain how a circuit operates to achieve particular operations, such as to control the light from a torch with different brightnesses or make a motor go faster or slower.</p> <p>Make circuits to solve particular problems, such as a quiet and a loud burglar alarm.</p>

	<p>fair test - effect of different activities on my pulse rate</p> <p>pattern seeking - exploring which groups of people may have higher or lower resting pulse rates</p> <p>observation over time - how long does it take my pulse rate to return to my resting pulse rate (recovery rate)</p> <p>pattern seeking - exploring recovery rate for different groups of people.</p> <p>Research the negative effects of drugs (e.g. tobacco) and the benefits of a healthy diet and regular exercise by asking an expert or using carefully selected secondary sources.</p>	<p>Research the characteristics of animals that belong to a group.</p> <p>Use information about the characteristics of an unknown animal or plant to assign it to a group.</p> <p>Classify plants and animals, presenting this in a range of ways e.g. Venn diagrams, Carroll diagrams and keys.</p> <p>Create an imaginary animal which has features from one or more groups.</p>	<p>changed during the industrial revolution.</p> <p>Make observations of fossils to identify living things that lived on Earth millions of years ago.</p> <p>Identify features in animals and plants that are passed onto offspring and explore this process by considering the artificial breeding of animals or plants e.g. dogs.</p> <p>Compare the ideas of Charles Darwin and Alfred Wallace on evolution. Identify ideas that support current arguments.</p> <p>Research the work of Mary Anning and how this provided evidence of evolution.</p>	<p>periscope design, rear view mirrors and shadow puppets.</p> <p>Explain these processes using models or diagrams and graphs.</p> <p>Can predict and explain, with diagrams or models as appropriate, how the shape of shadows can be varied.</p>	<p>Carry out fair tests exploring changes in circuits.</p> <p>Make circuits that can be controlled as part of a DT project.</p> <p>Can communicate structures of circuits using circuit diagrams with recognised symbols</p> <p>Can devise ways to measure brightness of bulbs, speed of motors, volume of a buzzer during a fair test</p> <p>Can predict results and answer questions by drawing on evidence gathered</p>
Subject Voc	<p>Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle</p> <p>Pattern seeking, research, benefit, consequence, expert, select, secondary sources, rate, observation over time, fair, accurate, variables</p>	<p>Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering</p> <p>Group, classify, organise, system, support, refute, opinion, present, diagram, key</p>	<p>Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils, adaptation, habitat</p> <p>Compare, ideas, refute, support, discuss, explain, describe, theory, theorists</p>	<p>As for Year 3 vocabulary for Light, plus: straight lines, light rays, reflect, refract</p> <p>Explain, enquiry, processes, labelled diagrams, key, annotate, predict, explain, varied</p>	<p>Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage</p> <p><b>Note:</b> Children do not need to understand what voltage is, but will use volts and voltage to describe different batteries. The words "cells" and "batteries" are now used interchangeably.</p> <p>Predict, draw upon evidence, gather, results, data, collect, measure, devise, fair, variables, components, communicate, problem solving</p>