

## Science Progression Map

Year Group	Subject Content <i>See National Curriculum for examples of possible depth studies</i>	Scientific Knowledge and Understanding	Scientific Vocabulary	Working Scientifically Skills
<b>EYFS ELGS</b>		<p><b>UW:</b></p> <ul style="list-style-type: none"> <li>Explore the natural world around them, making observations and drawing pictures of animals and plants</li> <li>Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class</li> <li>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</li> </ul>	<p><b>Speaking:</b></p> <ul style="list-style-type: none"> <li>Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modeling and support from their teacher.</li> </ul>	<p><b>Listening, Attention and Understanding:</b></p> <ul style="list-style-type: none"> <li>Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions.</li> <li>Make comments about what they have heard and ask questions to clarify their understanding.</li> </ul> <p><b>Speaking:</b></p> <ul style="list-style-type: none"> <li>Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.</li> <li>Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate.</li> <li>Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher.</li> </ul>
<b>Nurs 2-3 yo</b>	<p>Autumn 1 - Wow said the owl/ Owl Babies (<i>Me and my family/ woodland creatures</i>) Autumn 2 - I got the rhythm/walking through the jungle (<i>animals/my senses</i>) Spring 1 -The Gingerbread man/ dinosaur roar (<i>farm animals/ dinosaurs</i>) Spring 2 - We're going on a bear hunt/ brown bear, Brown bear (journneys and colours) Summer 1 - Jasper's beanstalk/ the enormous turnip (<i>Life Cycles, growing</i>) Summer 2 - Come on daisy/ we're going on a lion hunt (<i>Water/ wild animals</i>)</p>	<p><b>UW:</b></p> <p>Explore materials with different properties <i>exploration with fingers, feet and whole body. wet and dry sand, water, paint and playdough.</i></p> <p>Explore natural materials, indoors and outside. <i>nature table, leaves and conkers, things we find in different seasons</i></p> <p>Explore and respond to different natural phenomena in their setting and on trips. <i>exploring planting, insects life cycles/caterpillars, standing in the rain with wellies, seeing the spring daffodils</i></p>	<p>Model and encourage children to use vocabulary that is connected to the seasons and the scientific elements of the books and topics they share.</p>	<p>Characteristics of effective learning</p> <ul style="list-style-type: none"> <li>Playing and exploring – children investigate and experience things, and 'have a go'</li> <li>Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements</li> <li>Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things</li> </ul>
<b>Nurs 3-4 yo</b>	<p>Autumn 1 - Oral storytelling/ Owl Babies / ( Me and My Family/ woodland creatures) <i>humans</i> <i>animals excluding humans</i> <i>living things and their habitats</i> <i>seasonal changes</i> Autumn 2 -Handa's surprise/ the gingerbread man (Africa, wild animals/ festivals of light) <i>animals excluding humans</i> <i>living things and their habitats</i> <i>sound and light</i> Spring 1 - Whatever Next / The way back home (space) <i>Light</i> <i>Forces</i> <i>Materials</i> Spring 2 - The Three Billy Goats Gruff/ The Three little pigs (farm animals) <i>animals excluding humans</i> <i>living things and their habitats</i> <i>Forces</i> <i>Materials</i> Summer 1 - The Very Hungry Caterpillar / Super worm (Life Cycles/ minibeasts growing/ everyday heroes) <i>animals excluding humans</i> <i>living things and their habitats</i> <i>growing</i> Summer 2 Mrs Armitage on Wheels (journneys and moving on) <i>Materials</i> <b>seasonal changes</b></p>	<p><b>UW:</b></p> <p>Use all their senses in hands-on exploration of natural materials. <i>nature table collections of natural materials to investigate mud kitchen and garden area</i></p> <p>Explore collections of materials with similar and/or different properties. <i>magnifying glasses, collections of natural objects</i></p> <p>Plant seeds and care for growing plants.</p> <p>Understand the key features of the life cycle of a plant and an animal.<i>Summer 1 Hungry caterpillar</i></p> <p>Begin to understand the need to respect and care for the natural environment and all living things.<i>Summer 1 Hungry caterpillar</i></p> <p>Explore and talk about different forces they can feel. Talk about the differences between materials and changes they notice.<i>water play, sand play, cooking sinking floating</i></p>	<p>Talk about what they see, using a wide vocabulary</p> <p>Model and encourage children to use vocabulary such as:</p> <ul style="list-style-type: none"> <li>egg, chick, bird, caterpillar, cocoon, chrysalis, butterfly, frog spawn, tadpole, froglet, frog, grow, change, die, names of animals and their young, fur, feathers, scales, tail, wings, beak, claws, paws, hooves, swim, walk, run, jump, jump, fly, patterns, spots, stripes</li> </ul> <p>Expose children to supplementary vocabulary such as:</p> <ul style="list-style-type: none"> <li>life cycle, mane, webbed feet</li> </ul> <p>Model and encourage children to use vocabulary such as:</p> <ul style="list-style-type: none"> <li>grow, change, baby, toddler, child, adult, old person, smell, taste, touch, feel, hear, see, blind, deaf</li> </ul> <p>Expose children to supplementary vocabulary such as:</p> <ul style="list-style-type: none"> <li>life cycle, senses, elderly, die (if appropriate)</li> </ul> <p>Model and encourage children to use vocabulary such as:</p> <ul style="list-style-type: none"> <li>natural, plant, animal, leaves, seeds, conkers, acorns, twigs, bark, shells, feathers, pebbles, stones, same, different, pattern</li> </ul> <p>Expose children to supplementary vocabulary such as:</p> <ul style="list-style-type: none"> <li>living, dead, similar</li> </ul> <p>Model and encourage children to use vocabulary such as:</p> <ul style="list-style-type: none"> <li>plant, leaf, stem, branch, root, bark, flower, petal, seed, berry, fruit, vegetable, bulb, plant, hole, dig, water, weed, grow, shoot, die, dead, soil, names of plants they grow</li> </ul> <p>Expose children to supplementary vocabulary such as:</p> <ul style="list-style-type: none"> <li>seedling, healthy, unhealthy, strong, sturdy, wilting, decay, mould, life cycle</li> </ul> <p>Model and encourage children to use vocabulary such as:</p> <ul style="list-style-type: none"> <li>mix, stir, cook, hot, oven, microwave, change, burn, melt, hard, runny, set, freeze, freezer, cold, blended, hard, soft, bendy, stiff, wobbly, wood, plastic, paper, card, fabric</li> </ul>	<p>Characteristics of effective learning</p> <ul style="list-style-type: none"> <li>Playing and exploring – children investigate and experience things, and 'have a go'</li> <li>Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements</li> <li>Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things</li> </ul>

			<p>Expose children to supplementary vocabulary such as:</p> <ul style="list-style-type: none"> <li>• solid, liquid, rigid, stronger, weaker</li> </ul> <p>Model and encourage children to use vocabulary such as:</p> <ul style="list-style-type: none"> <li>• object, float, sink, water, up, down, top, bottom, push, pull, magnet, spring, squash, bend, twist, stretch, turn, spin, smooth, rough, fast, slow</li> </ul> <p>Expose children to supplementary vocabulary such as:</p> <ul style="list-style-type: none"> <li>• rising, falling, attract, repel, faster, slower, pulley, gear, elastic</li> </ul>	
<b>Reception</b>	<p>Autumn 1 - Owl Babies / Me and My Family ( Me and My Family/ woodland creatures)  humans  animals excluding humans  living things and their habitats  Autumn 2 - Room on the Broom / (Festivals of light/ being healthy)  seasonal changes  animals excluding humans  Spring 1 - Jack and the Beanstalk ( Growing)  living things and their habitats  animals excluding humans  Spring 2 - Mr Gumpy's outing (water)  forces  materials  animals excluding humans  Summer 1 - The Little Red Hen (Life Cycles)  animals excluding humans  living things and their habitats  Summer 2 - Steam project (The London Skyline)  forces  sound  material including changing materials</p>	<p><b>UW:</b></p> <p>Explore the natural world around them.  <i>trips to the zoo, trips on the boat, walks to the park, outdoor play, planting and growing, looking after the chicks, nature table, magnets, floating sinking,</i></p> <p>Describe what they see, hear and feel whilst outside.  <i>ask questions about what they can hear, see smell, describe and name animals and plants</i></p> <p>Recognise some environments that are different from the one in which they live.  <i>maps, books</i></p> <p>Understand the effect of changing seasons on the natural world around them.  <i>outside play, nature investigation table, weather and seasons books</i></p>	<p>Model and encourage children to use vocabulary such as:</p> <ul style="list-style-type: none"> <li>• hair (black, brown, dark, light, blonde, ginger, grey, white, long, short, straight, curly), eyes (blue, brown, green, grey), skin (black, brown, white), big/tall, small/short, bigger/smaller, baby, toddler, child, adult, old person, old, young, brother, sister, mother, father, aunt, uncle, grandmother, grandfather, cousin, friend, family, boy, girl, man, woman</li> </ul> <p>Expose children to supplementary vocabulary such as:</p> <ul style="list-style-type: none"> <li>• bald, elderly, wrinkles, male, female, freckles</li> </ul> <p>Model and encourage children to use vocabulary such as:</p> <ul style="list-style-type: none"> <li>• names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice</li> </ul> <p>Expose children to supplementary vocabulary such as:</p> <ul style="list-style-type: none"> <li>• environment, polar regions, ocean, camouflage</li> </ul> <p>Model and encourage children to use vocabulary such as:</p> <ul style="list-style-type: none"> <li>• plant, tree, bush, flower, vegetable, herb, weed, animal, names of plants and animals they see, name of a contrasting environment e.g. beach, forest</li> </ul> <p>Expose children to supplementary vocabulary such as:</p> <ul style="list-style-type: none"> <li>• environment</li> </ul> <p>Model and encourage children to use vocabulary such as:</p> <ul style="list-style-type: none"> <li>• spring, summer, autumn, winter, seasons, sunny, cloudy, hot, warm, cold, shower, raining, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, windy, rainbow, animals, young, plants, flowers</li> </ul> <p>Expose children to supplementary vocabulary such as:</p> <ul style="list-style-type: none"> <li>• hibernate, migrate, snowflake</li> </ul> <p>Model and encourage children to use vocabulary such as:</p> <ul style="list-style-type: none"> <li>• ice, water, frozen, icicle, snow, melt, wet, cold, slippery, smooth, big, bigger, biggest, smaller, smaller, smallest, hard, soft, bendy, rigid, wood, plastic, paper, card, metal, strong, weak, hot, apply heat, waterproof, soggy, not waterproof, best, change, change back</li> </ul> <p>Expose children to supplementary vocabulary such as:</p> <ul style="list-style-type: none"> <li>• solid, liquid, gas, most suited</li> </ul> <p>Model and encourage children to use vocabulary such as:</p> <ul style="list-style-type: none"> <li>• float, sink, up, down, top, bottom, surface, move, roll, drop, fly, turn, spin, fall, fast, slow, faster, slower, fastest, slowest, further, furthest, wind, air, water, blow, bounce</li> </ul> <p>Expose children to supplementary vocabulary such as:</p> <ul style="list-style-type: none"> <li>• force, rotate, solid, liquid, gravity</li> </ul>	<p>Characteristics of effective learning</p> <ul style="list-style-type: none"> <li>• Playing and exploring – children investigate and experience things, and ‘have a go’</li> <li>• Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements</li> <li>• Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things</li> </ul> <p>Answer and ask who/what/where/when questions  Begin to ask and answer how and why questions</p> <p>Retell a story or event  Use a photograph or picture to discuss a person, place or event  Ask and answer a broader range of questions about their experiences, including ‘how’ and ‘why’ questions</p> <p>Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons</p>

Year Group 1	Subject Content <i>See National Curriculum for examples of possible depth studies</i>	Scientific Knowledge and Understanding	Scientific Vocabulary	Working Scientifically Skills
	<ul style="list-style-type: none"> <li>Plants</li> </ul>	<ul style="list-style-type: none"> <li>To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</li> <li>To identify and describe the basic structure of a variety of common flowering plants, including trees.</li> </ul>	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	<p><b>Ask simple questions and recognise that they can be answered in different ways</b></p> <ul style="list-style-type: none"> <li>To be able to differentiate between statements and questions.</li> <li>To select appropriate questions suggested by the teacher (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen) and where appropriate, answer these questions.</li> <li>To answer questions developed through a scenario.</li> <li>To plan how to use resources provided to answer questions, helping them to recognise that there are different ways in which questions can be answered.</li> </ul>
	<ul style="list-style-type: none"> <li>Animals including humans</li> </ul>	<ul style="list-style-type: none"> <li>To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</li> <li>To identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</li> <li>To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</li> </ul>	Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves • Names of animals experienced first-hand from each vertebrate group • Parts of the body including those linked to PSHE teaching (see joint document produced by the ASE and PSHE Association) • Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue N.B. The children need to be able to name and identify a range of animals in each group e.g. name specific birds and fish. They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics. The children also do not need to use the words carnivore, herbivore and omnivore. If they do, ensure that they understand that carnivores eat other animals, not just meat. Although we often use our fingers and hands to feel objects, the children	<p><b>Observe closely, using simple equipment.</b></p> <ul style="list-style-type: none"> <li>To make careful observations to support identification, comparison and noticing change.</li> <li>To use appropriate senses and, with support, equipment to make observations.</li> <li>To begin to take measurements by comparisons.</li> </ul> <p><b>Practical enquiry to answer questions</b></p> <ul style="list-style-type: none"> <li>To use practical resources provided to perform simple tests and gather evidence to answer questions generated by the teacher.</li> <li>To carry out tests to classify.</li> <li>To make observations over time.</li> </ul> <p><b>Identify and classify.</b></p> <ul style="list-style-type: none"> <li>To use observations and testing to compare objects, materials and living things.</li> <li>To sort and group according to a criteria.</li> <li>To use simple secondary sources (such as identification sheets) to name living things.</li> <li>To describe characteristics to identify a living thing.</li> </ul> <p><b>Recording and presenting evidence</b></p> <ul style="list-style-type: none"> <li>To record observations (e.g. using photographs, videos, drawings or labelled diagrams).</li> <li>To record their measurements (e.g. using prepared tables or pictograms).</li> <li>To classify using simple prepared tables and sorting rings.</li> </ul> <p><b>Answering questions and concluding</b></p> <ul style="list-style-type: none"> <li>To use observations and ideas to suggest answers to questions.</li> <li>To use their experiences of the world around them to suggest answers to questions.</li> <li>To recognise 'biggest and smallest', 'best and worst' etc. from their data.</li> </ul>
	<ul style="list-style-type: none"> <li>Seasonal changes</li> </ul>	<ul style="list-style-type: none"> <li>To observe changes across the four seasons.</li> <li>To observe and describe weather associated with the seasons and how day length varies.</li> </ul>	Weather (sunny, rainy, windy, snowy etc.) • Seasons (winter, summer, spring, autumn) • Sun, sunrise, sunset, day length	
	<ul style="list-style-type: none"> <li>Materials</li> </ul>	<ul style="list-style-type: none"> <li>To distinguish between an object and the material from which it is made.</li> <li>To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</li> <li>To describe the simple physical properties of a variety of everyday materials.</li> <li>To compare and group together a variety of everyday materials on the basis of their simple physical properties.</li> </ul>	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	

Year Group 2	Subject Content <i>See National Curriculum for examples of possible depth studies</i>	Scientific Knowledge and Understanding	Scientific Vocabulary	Working Scientifically Skills
	<ul style="list-style-type: none"> <li>Living things and their habitats</li> </ul>	<ul style="list-style-type: none"> <li>To explore and compare the differences between things that are living, dead, and things that have never been alive.</li> <li>To 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.</li> <li>To identify and name a variety of plants and animals in their habitats, including microhabitats.</li> <li>To 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.</li> <li>To notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals including humans)</li> </ul>	Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed • Names of local habitats e.g. pond, woodland etc. • Names of micro-habitats e.g. under logs, in bushes etc.	<p><b>Ask simple questions and recognise that they can be answered in different ways</b></p> <ul style="list-style-type: none"> <li>To begin to generate their own questions (such as what something is, how things are similar and different, the way things work, which alternative is better, how things change and how they happen).</li> <li>To generate questions, with support, through a scenario.</li> <li>To plan how to use resources provided to answer questions, using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.</li> </ul> <p><b>Observe closely, using simple equipment.</b></p> <ul style="list-style-type: none"> <li>To make careful observations to support identification, comparison and noticing change.</li> <li>To use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations.</li> <li>To begin to take measurements using non-standard units.</li> </ul>
	<ul style="list-style-type: none"> <li>Plants</li> </ul>	<ul style="list-style-type: none"> <li>To observe and describe how seeds and bulbs grow into mature plants.</li> <li>To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> <li>To identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)</li> </ul>	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 plus light, shade, sun, warm, cool, water, grow, healthy	<p><b>Practical enquiry to answer questions</b></p> <ul style="list-style-type: none"> <li>To use practical resources provided to gather evidence to answer questions generated by themselves.</li> <li>To carry out; tests to classify; comparative tests; and pattern seeking enquiries.</li> <li>To make observations over time.</li> </ul> <p><b>Identify and classify.</b></p> <ul style="list-style-type: none"> <li>To make observations and testing to compare objects, materials and living things.</li> <li>To identify own criteria for sorting and grouping.</li> <li>To use simple secondary sources (such as identification sheets) to name living things and then describe the characteristics they used to identify a living thing.</li> </ul>
	<ul style="list-style-type: none"> <li>Animals including humans</li> </ul>	<ul style="list-style-type: none"> <li>To notice that animals, including humans, have offspring which grow into adults.</li> <li>To find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</li> <li>To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul>	Offspring, 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><b>Recording and presenting evidence</b></p> <ul style="list-style-type: none"> <li>To record observations (e.g. using photographs, videos, drawings, labelled diagrams or in writing).</li> <li>To record their measurements (e.g. using prepared tables, pictograms, tally charts and block graphs).</li> <li>To classify their own findings using different methods.</li> </ul>
	<ul style="list-style-type: none"> <li>Materials</li> </ul>	<ul style="list-style-type: none"> <li>To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</li> <li>To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</li> </ul>	Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard  Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid  Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching	<p><b>Answering questions and concluding</b></p> <ul style="list-style-type: none"> <li>To use their experiences of the world around them to suggest appropriate answers to questions and, with support, relate these to their evidence (e.g. observations they have made, measurements they have taken or information they have gained from secondary sources).</li> <li>To recognise patterns within their data.</li> </ul>

Year Group 3	Subject Content <i>See National Curriculum for examples of possible depth studies</i>	Scientific Knowledge and Understanding	Scientific Vocabulary	Working Scientifically Skills
	<ul style="list-style-type: none"> <li>Plants</li> </ul>	<ul style="list-style-type: none"> <li>To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)</li> </ul>	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal)	<p><b>Asking relevant questions and using different types of scientific enquiries to answer them</b></p> <ul style="list-style-type: none"> <li>To consider their prior knowledge when asking questions.</li> <li>To independently use a range of question stems to generate their own questions and, where appropriate, answer these questions.</li> <li>To answer questions posed by the teacher.</li> <li>To decide for themselves how to gather evidence to answer a question, being given a range of resources to choose from.</li> <li>To recognise when secondary sources can be used to answer questions that cannot be answered through practical work.</li> <li>To identify the type of enquiry that they have chosen to answer their questions.</li> </ul>
	<ul style="list-style-type: none"> <li>Animals including humans</li> </ul>	<ul style="list-style-type: none"> <li>To 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.</li> <li>To identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> </ul>	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints	<p><b>Making observations and taking measurements</b></p> <ul style="list-style-type: none"> <li>To make systematic and careful observations.</li> <li>To use a range of equipment for measuring length, time, temperature and capacity.</li> <li>To take accurate measurements using standard units, using a range of equipment (including thermometers and data loggers).</li> </ul>
	<ul style="list-style-type: none"> <li>Rocks</li> </ul>	<ul style="list-style-type: none"> <li>To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</li> <li>To describe in simple terms how fossils are formed when things that have lived are trapped within rock.</li> <li>To recognise that soils are made from rocks and organic matter.</li> </ul>	Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil	<p><b>Engaging in practical enquiry to answer questions</b></p> <ul style="list-style-type: none"> <li>To select from a range of practical resources to gather evidence to answer questions generated by themselves. .</li> <li>To set up simple practical enquiries, comparative and fair tests.</li> <li>To follow a plan to carry out a range of enquiry types.</li> </ul>
	<ul style="list-style-type: none"> <li>Light</li> </ul>	<ul style="list-style-type: none"> <li>To recognise that they need light in order to see things and that dark is the absence of light.</li> <li>To notice that light is reflected from surfaces.</li> <li>To recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</li> <li>To recognise that shadows are formed when the light from a light source is blocked by an opaque object.</li> <li>To find patterns in the way that the size of shadows change.</li> </ul>	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous	<p><b>Recording and presenting evidence</b></p> <ul style="list-style-type: none"> <li>To record observations (e.g. using photographs, videos, pictures, labelled diagrams or writing).</li> <li>To record measurements (e.g. using tables, tally charts and bar charts)</li> <li>To record classifications (e.g. using tables, Venn diagrams, Carroll diagrams).</li> <li>To present the same data in different ways in order to help with answering the question.</li> </ul>
	<ul style="list-style-type: none"> <li>Forces and magnets</li> </ul>	<ul style="list-style-type: none"> <li>To compare how things move on different surfaces.</li> <li>To notice that some forces need contact between two objects, but magnetic forces can act at a distance.</li> <li>To observe how magnets attract or repel each other and attract some materials and not others.</li> <li>To 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.</li> <li>To describe magnets as having two poles.</li> <li>To predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul>	Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole	<p><b>Answering questions and concluding</b></p> <ul style="list-style-type: none"> <li>To answer their own and others' questions based on observations they made, measurements they have taken or information they have gained from secondary sources.</li> <li>To use straightforward scientific evidence to answer questions or to support their findings.</li> <li>To identify differences, similarities or changes related to simple scientific ideas and processes.</li> <li>To interpret data to generate simple comparative statements based on their evidence.</li> <li>To begin to identify naturally occurring patterns and causal relationships.</li> </ul> <p><b>Evaluating and raising further questions and predictions</b></p> <ul style="list-style-type: none"> <li>To draw conclusions based on their evidence and current subject knowledge.</li> <li>To identify ways in which a method could be adapted or how they would do it differently if they repeated the enquiry.</li> <li>To use evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface.</li> <li>To ask further questions which can be answered by extending the same enquiry.</li> </ul> <p><b>Communicating their findings</b></p> <ul style="list-style-type: none"> <li>To communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary</li> </ul>

Science: KS2				
Year Group: 4	Topic	Science Knowledge	Key Vocabulary	Working Scientifically Skills
	<ul style="list-style-type: none"> <li>Animals including Humans (teeth)</li> </ul>	<ul style="list-style-type: none"> <li>To describe the simple functions of the basic parts of the digestive system in humans.</li> <li>To identify the different types of teeth in humans and their simple functions.</li> <li>To construct and interpret a variety of food chains, identifying producers, predators and prey</li> </ul>	Living things can be classified as producers, predators and prey according to their place in the food chain.	<p><b>Asking relevant questions and using different types of scientific enquiries to answer them</b></p> <ul style="list-style-type: none"> <li>To consider their prior knowledge when asking questions, independently using a range of questions stems to generate and answer their own questions and questions posed by the teacher.</li> <li>Given a range of resources, the children decide for themselves how to gather evidence to answer the question. They recognise when secondary sources can be used to answer questions that cannot be answered through practical work. They identify the type of enquiry that they have chosen to answer their questions</li> </ul>
	<ul style="list-style-type: none"> <li>Living Things and their Habitats</li> </ul>	<ul style="list-style-type: none"> <li>To recognise that living things can be grouped in a variety of ways.</li> <li>To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</li> <li>To recognise that environments can change and that this can sometimes pose dangers to living things.</li> <li>To construct and interpret a variety of food chains, identifying producers, predators and prey. (Y4 - Animals, including humans)</li> </ul>	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><b>Making observations and taking measurements</b></p> <ul style="list-style-type: none"> <li>To make systematic and careful observations.</li> <li>To use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.</li> </ul> <p><b>Engaging in practical enquiry to answer questions</b></p> <ul style="list-style-type: none"> <li>To select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher.</li> <li>To follow a plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.</li> </ul>
	<ul style="list-style-type: none"> <li>States of Matter (Materials)</li> </ul>	<ul style="list-style-type: none"> <li>To compare and group materials together, according to whether they are solids, liquids or gases.</li> <li>To 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).</li> <li>To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> </ul>	Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle	<p><b>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</b></p> <ul style="list-style-type: none"> <li>To sometimes decide how to record and present evidence.</li> <li>To record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing.</li> <li>To record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings).</li> <li>To record classifications e.g. using tables, Venn diagrams, Carroll diagrams.</li> <li>To present the same data in different ways in order to help with answering the question, supported by an adult.</li> </ul>
	<ul style="list-style-type: none"> <li>Sound</li> </ul>	<ul style="list-style-type: none"> <li>To identify how sounds are made, associating some of them with something vibrating.</li> <li>To recognise that vibrations from sounds travel through a medium to the ear.</li> <li>To find patterns between the pitch of a sound and features of the object that produced it.</li> <li>To find patterns between the volume of a sound and the strength of the vibrations that produced it.</li> <li>To recognise that sounds get fainter as the distance from the sound source increases.</li> </ul>	Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation	<p><b>Using straightforward scientific evidence to answer questions or to support their findings</b></p> <ul style="list-style-type: none"> <li>To answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. The answers are consistent with the evidence</li> </ul> <p><b>Identifying differences, similarities or changes related to simple scientific ideas and processes</b></p> <ul style="list-style-type: none"> <li>To interpret their data to generate simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships.</li> </ul>
	<ul style="list-style-type: none"> <li>Electricity</li> </ul>	<ul style="list-style-type: none"> <li>To identify common appliances that run on electricity.</li> <li>To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</li> <li>To 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.</li> <li>To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</li> <li>To recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul>	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><b>Evaluating and raising further questions and predictions</b></p> <ul style="list-style-type: none"> <li>To draw conclusions based on their evidence and current subject knowledge.</li> <li>To identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry.</li> <li>To use their evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface.</li> <li>To ask further questions which can be answered by extending the same enquiry, following a scientific experience.</li> </ul> <p><b>Communicating their findings</b></p> <ul style="list-style-type: none"> <li>To communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary</li> </ul>

Science: KS2				
Year Group: 5	Topic	Science Knowledge	Key Vocabulary	Working Scientifically Skills
	<ul style="list-style-type: none"> <li>Animals, including Humans</li> </ul>	<ul style="list-style-type: none"> <li>To describe the changes as humans develop to old age.</li> <li>To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats)</li> <li>To describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats)</li> </ul>	Puberty – the vocabulary to describe sexual characteristics	<p><b>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</b></p> <ul style="list-style-type: none"> <li>To independently ask scientific questions stimulated by a scientific experience or ask further questions based on their developed understanding following an enquiry.</li> <li>To decide how to gather evidence to answer a scientific question when given a wide range of resources.</li> <li>To choose a type of enquiry to carry out and justify their choice.</li> <li>To recognise how secondary sources can be used to answer questions that cannot be answered through practical work.</li> </ul>
	<ul style="list-style-type: none"> <li>Living Things and their Habitats</li> </ul>	<ul style="list-style-type: none"> <li>To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</li> <li>To describe the life process of reproduction in some plants and animals.</li> </ul>	Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings	<p><b>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</b></p> <ul style="list-style-type: none"> <li>To select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale.</li> <li>To make decisions during an enquiry, e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value).</li> </ul>
	<ul style="list-style-type: none"> <li>Properties and Changes of Materials</li> </ul>	<ul style="list-style-type: none"> <li>To 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.</li> <li>To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</li> <li>To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</li> <li>To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</li> <li>To demonstrate that dissolving, mixing and changes of state are reversible changes.</li> <li>To 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.</li> </ul>	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material	<p><b>Engaging in practical enquiry to answer questions</b></p> <ul style="list-style-type: none"> <li>To select from a range of practical resources to gather evidence to answer their questions.</li> <li>To carry out fair tests, recognising and controlling variables.</li> <li>To decide what observations or measurements to make over time and for how long.</li> <li>To look for patterns and relationships using a suitable sample.</li> </ul> <p><b>Recording data and results of increasing complexity</b></p> <ul style="list-style-type: none"> <li>To decide how to record and present evidence.</li> <li>To record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing.</li> <li>To record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs.</li> <li>To record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys.</li> <li>To present the same data in different ways in order to help with answering the question.</li> </ul>
	<ul style="list-style-type: none"> <li>Forces</li> </ul>	<ul style="list-style-type: none"> <li>To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</li> <li>To identify the effects of air resistance, water resistance and friction, that act between moving surfaces.</li> <li>To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul>	Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears	<p><b>Identifying scientific evidence that has been used to support or refute ideas or arguments</b></p> <ul style="list-style-type: none"> <li>To answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer.</li> <li>To talk about how their scientific ideas change due to new evidence that they have gathered.</li> <li>To talk about how new discoveries change scientific understanding.</li> <li>In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the overall pattern; and explain their findings using their subject knowledge.</li> </ul>
	<ul style="list-style-type: none"> <li>Space</li> </ul>	<ul style="list-style-type: none"> <li>To describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</li> <li>To describe the movement of the Moon relative to the Earth.</li> <li>To describe the Sun, Earth and Moon as approximately spherical bodies.</li> <li>To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul>	Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets	<p><b>Evaluating and raising further questions and predictions</b></p> <ul style="list-style-type: none"> <li>To evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used.</li> <li>To identify any limitations that reduce the trust they have in their data.</li> <li>To report and present findings from enquiries in oral and written forms, including conclusions, causal relationships and explanations of and degree of trust in results.</li> <li>To use the scientific knowledge gained from enquiry work to make predictions they can investigate using comparative and fair tests.</li> <li>To communicate their findings to an audience using relevant scientific language and illustrations.</li> </ul>

**Science: KS2**

Year Group: 6	Topic	Science Knowledge	Key Vocabulary	Working Scientifically Skills
	<ul style="list-style-type: none"> <li>Animals, including Humans</li> </ul>	<ul style="list-style-type: none"> <li>To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</li> <li>To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</li> <li>To describe the ways in which nutrients and water are transported within animals, including humans.</li> <li>To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. (Y6 - Living things and their habitats)</li> <li>To give reasons for classifying plants and animals based on specific characteristics. (Y6 - Living things and their habitats)</li> </ul>	Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle	<p><b>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</b></p> <ul style="list-style-type: none"> <li>To independently ask scientific questions stimulated by a scientific experience or ask further questions based on their developed understanding following an enquiry.</li> <li>To decide how to gather evidence to answer a scientific question when given a wide range of resources.</li> <li>To choose a type of enquiry to carry out and justify their choice.</li> <li>To recognise how secondary sources can be used to answer questions that cannot be answered through practical work.</li> </ul> <p><b>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</b></p>
	<ul style="list-style-type: none"> <li>Living Things and their Habitats</li> </ul>	<ul style="list-style-type: none"> <li>To 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.</li> <li>To give reasons for classifying plants and animals based on specific characteristics.</li> </ul>	Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering	<ul style="list-style-type: none"> <li>To select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale.</li> <li>To make decisions during an enquiry, e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value).</li> </ul> <p><b>Engaging in practical enquiry to answer questions</b></p>
	<ul style="list-style-type: none"> <li>Evolution and Inheritance</li> </ul>	<ul style="list-style-type: none"> <li>To recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</li> <li>To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</li> <li>To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul>	Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils	<ul style="list-style-type: none"> <li>To select from a range of practical resources to gather evidence to answer their questions.</li> <li>To carry out fair tests, recognising and controlling variables.</li> <li>To decide what observations or measurements to make over time and for how long.</li> <li>To look for patterns and relationships using a suitable sample.</li> </ul> <p><b>Recording data and results of increasing complexity</b></p>
	<ul style="list-style-type: none"> <li>Light</li> </ul>	<ul style="list-style-type: none"> <li>To recognise that light appears to travel in straight lines.</li> <li>To 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.</li> <li>To 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.</li> <li>To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li> </ul>	Light, plus straight lines, light rays	<ul style="list-style-type: none"> <li>To decide how to record and present evidence.</li> <li>To record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing.</li> <li>To record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs.</li> <li>To record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys.</li> <li>To present the same data in different ways in order to help with answering the question.</li> </ul> <p><b>Identifying scientific evidence that has been used to support or refute ideas or arguments</b></p>
	<ul style="list-style-type: none"> <li>Electricity</li> </ul>	<ul style="list-style-type: none"> <li>To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</li> <li>To compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.</li> <li>To use recognised symbols when representing a simple circuit in a diagram.</li> </ul>	Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage	<ul style="list-style-type: none"> <li>To answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer.</li> <li>To talk about how their scientific ideas change due to new evidence that they have gathered.</li> <li>To talk about how new discoveries change scientific understanding.</li> <li>In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the overall pattern; and explain their findings using their subject knowledge.</li> </ul> <p><b>Evaluating and raising further questions and predictions</b></p> <ul style="list-style-type: none"> <li>To evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used.</li> <li>To identify any limitations that reduce the trust they have in their data.</li> <li>To report and present findings from enquiries in oral and written forms, including conclusions, causal relationships and explanations of and degree of trust in results.</li> <li>To use the scientific knowledge gained from enquiry work to make predictions they can investigate using comparative and fair tests.</li> <li>To communicate their findings to an audience using relevant scientific language and illustrations.</li> </ul>