



Science Progression of Skills

Threshold Concept	Strand	EYFS	Milestone 1 (Years 1 and 2)	Milestone 2 (Years 3 and 4)	Milestone 3 (Years 5 and 6)
Working Scientifically	Asking scientific questions	Through play based learning and adult modelling, children generate their own questions about the world around them.	Explore the world around them and raise their own simple questions	Raise their own relevant questions about the world around them	Use their science experiences to explore ideas and raise different kinds of questions
	Experience types of scientific enquiry		Experience different types of science enquiries, including practical activities	Should be given a range of scientific experiences including different types of science enquiries to answer questions	Talk about how scientific ideas have developed over time
	Responding to scientific questions	Understand why questions.	Begin to recognise different ways in which they might answer scientific questions	Start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions	Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions
	Planning practical tests/ experiments	Explore how things work and carry out simple tests as a whole class.	Carry out simple tests	Set up simple practical enquiries, comparative and fair tests Recognise when a simple fair test is necessary and help to decide how to set it up	Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why



	Sorting, comparing and classifying	Sort natural items by at least 2 criteria	Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying and classifying)	Talk about criteria for grouping, sorting and classifying; and use simple keys	Use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment
	Using secondary sources	Engage in non-fiction books. Listen to and talk about selected non-fiction to develop a deep familiarity with new knowledge and vocabulary.	Ask people questions and use simple secondary sources to find answers	Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations	Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact
	Observation skills	Use all their senses in hands-on exploration of natural materials. Making observations about animals and plants.	Observe closely using simple equipment With help, observe changes over time	Make systematic and careful observations Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used	Make their own decisions about what observations to make, what measurements to use and how long to make them for



	Pattern seeking		With guidance, they should begin to notice patterns and relationships	Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them	Look for different causal relationships in their data and identify evidence that refutes or supports their ideas
	Measuring	Take simple measurements in non-standard units	Use simple measurements and equipment (e.g. Hand lenses, egg timers) to gather data	Take accurate measurements using standard units Learn how to use a range of (new) equipment, such as data loggers / thermometers appropriately	Choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately. Take repeat measurements where appropriate.
	Recording data	Drawing pictures of animals and plants.	Record simple data	Collect and record data from their own observations and measurements in a variety of ways: notes, bar charts and tables, standard units, drawings, labelled diagrams, keys and help to make decisions about how to analyse this data	Decide how to record data and results of increasing complexity from a choice of familiar approaches: scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
	Generating conclusions	Talk about what they see using a wide range of vocabulary.	Use their observations and ideas to suggest answers to questions Talk about what they have found out and how they found it out	With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.	Identify scientific evidence that has been used to support or refute ideas or arguments
	Using scientific language		With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language	Use relevant simple scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences, including	Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas,



				oral and written explanations, displays or presentations of results and conclusions	Use oral and written forms such as displays and other presentations to report conclusions, causal relationships and explanations of degree of trust in results
	Predicting and evaluating			With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done.	Use their results to make predictions and identify when further observations, comparative and fair tests might be needed
Biology	Understand animals including humans	<ul style="list-style-type: none"> • Understand key features of life cycles of plants and animals. • Be increasingly independent in meeting own care needs and make healthy choices. 	<ul style="list-style-type: none"> • Identify and name a variety of common animals that are birds, fish, reptiles, amphibians, mammals and invertebrates. (Y1) • Identify and name a variety of common animals that are carnivores, herbivores and omnivores (Y1) • Describe and compare the structure of a variety of common animals (birds, fish, reptiles, amphibians, mammals and 	<ul style="list-style-type: none"> • Identify that animals including humans need the right types and amounts of nutrition, that they cannot make their own food and that they get nutrition from what they eat. (Y3) • Identify that humans and some animals have skeletons and muscles for support, protection and movement. (Y3) • To construct and interpret a variety of food chains, 	<ul style="list-style-type: none"> • Describe the changes as humans develop to old age. (Y5) • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6) • Describe the ways in which nutrients and water are transported within animals, including humans. (Y6) • Identify and name the main parts of the human circulatory system and describe the



		<ul style="list-style-type: none"> ● Know and talk about the different factors that support their overall health and wellbeing including healthy eating and toothbrushing. 	<p>invertebrates, including pets) (Y1)</p> <ul style="list-style-type: none"> ● Identify, name, draw and label the basics parts of the human body and say which part of the body is associated with each sense. (Y1) ● Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) (Y2) ● Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene (Y2) ● Notice that animals, including humans, have offspring which grow into adults (Y2) 	<p>identifying producers, predators and prey. (Y4)</p> <ul style="list-style-type: none"> ● Describe the simple functions of the basic parts of the digestive system in humans. (Y4) ● Identify the different types of teeth in humans and their simple functions (Y4) 	<p>functions of the heart, blood vessels and blood. (Y6)</p>
	<p>Understanding plants</p>	<ul style="list-style-type: none"> ● Plant seeds and care for growing plants. 	<ul style="list-style-type: none"> ● Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees (Y1) ● Identify and describe the basic structure of a 	<ul style="list-style-type: none"> ● Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers (Y3) ● Explore the requirements of plants for life and growth (air, 	



			<p>variety of common flowering plants, including trees (Y1)</p> <ul style="list-style-type: none"> ● Observe and describe how seeds and bulbs grow into mature plants (Y2) ● Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy (Y2) 	<p>light, water, nutrients from soil, and room to grow) and how they vary from plant to plant (Y3)</p> <ul style="list-style-type: none"> ● Investigate the way in which water is transported within plants (Y3) ● Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal (Y3) 	
	<p>Investigate living things and their habitats</p>	<ul style="list-style-type: none"> ● Understand the need to respect and care for natural environment and all living things 	<ul style="list-style-type: none"> ● Explore and compare the differences between things that are living, dead, and things that have never been alive (Y2) ● 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 (Y2) ● Identify and name a variety of plants and animals in 	<ul style="list-style-type: none"> ● Recognise that living things can be grouped in a variety of ways (Y4) ● Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment (Y4) ● Recognise that environments can change and that this can sometimes pose dangers to living things (Y4) 	<ul style="list-style-type: none"> ● Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird (Y5) ● Describe the life process of reproduction in some plants and animals (Y5) ● 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)



			<p>their habitats, including microhabitats (Y2)</p> <ul style="list-style-type: none"> • 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 (Y2) 		<ul style="list-style-type: none"> • Give reasons for classifying plants and animals based on specific characteristics (Y6)
	Understand evolution and inheritance				<ul style="list-style-type: none"> • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago (Y6) • Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents (Y6) • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution (Y6)
Chemistry	Investigate different materials	<ul style="list-style-type: none"> • Talk about differences between 	<ul style="list-style-type: none"> • Distinguish between an object and the material (Y1) 	<ul style="list-style-type: none"> • Compare and group together different kinds of rocks on the 	<ul style="list-style-type: none"> • Compare and group together everyday materials on the basis of their properties, including



		<p>materials and changes they notice</p> <ul style="list-style-type: none"> ● Explore collections of materials with similar and different properties. ● Understand some important processes and changes in the natural world around them, changing states of matter 	<ul style="list-style-type: none"> ● Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock (Y1) ● Describe the simple physical properties of a variety of everyday materials (Y1) ● Compare and group together a variety of everyday materials on the basis of their simple physical properties (Y1) ● Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses (Y2) ● Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching (Y2) 	<p>basis of their appearance and simple physical properties (Y3)</p> <ul style="list-style-type: none"> ● Describe in simple terms how fossils are formed when things that have lived are trapped within rock (Y3) ● Recognise that soils are made from rocks and organic matter (Y3) ● Compare and group materials together, according to whether they are solids, liquids or gases (Y4) ● 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) (Y4) ● Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature (Y4) 	<p>their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets (Y5)</p> <ul style="list-style-type: none"> ● Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution (Y5) ● Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating (Y5) ● Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic (Y5) ● Demonstrate that dissolving, mixing and changes of state are reversible changes (Y5) ● Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes
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					associated with burning and the action of acid on bicarbonate of soda (Y5)
Physics	Understanding movement, forces and magnets	<ul style="list-style-type: none"> • Explore and talk about forces they can feel • Understand the effect of changing seasons on the natural world around them. 	<ul style="list-style-type: none"> • Observe changes across the four seasons (Y1) • Observe and describe weather associated with the seasons and how day length varies (Y1) 	<ul style="list-style-type: none"> • Compare how things move on different surfaces (Y3) • Notice that some forces need contact between two objects, but magnetic forces can act at a distance (Y3) • Observe how magnets attract or repel each other and attract some materials and not others (Y3) • 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 (Y3) • Describe magnets as having two poles (Y3) • Predict whether two magnets will attract or repel each other, depending on which poles are facing (Y3) 	<ul style="list-style-type: none"> • Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object (Y5) • Identify the effects of air resistance, water resistance and friction, that act between moving surfaces (Y5) • Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect (Y5) • Describe the movement of the Earth, and other planets, relative to the Sun in the solar system (Y5) • Describe the movement of the Moon relative to the Earth (Y5) • Describe the Sun, Earth and Moon as approximately spherical bodies (Y5) • Use the idea of the Earth's rotation to explain day and



					night and the apparent movement of the sun across the sky (Y5)
	Understand light and seeing	Explore a range of sensory light resources including dark dens, torches and light boxes.		<ul style="list-style-type: none"> ● Recognise that they need light in order to see things and that dark is the absence of light (Y3) ● Notice that light is reflected from surfaces (Y3) ● Recognise that light from the sun can be dangerous and that there are ways to protect their eyes (Y3) ● Recognise that shadows are formed when the light from a light source is blocked by an opaque object (Y3) ● Find patterns in the way that the size of shadows change (Y3) 	
	Investigate sound and hearing	Explore different instruments and identify different sounds and the differences between sounds		<ul style="list-style-type: none"> ● Identify how sounds are made, associating some of them with something vibrating (Y4) ● Recognise that vibrations from sounds travel through a medium to the ear (Y4) ● Find patterns between the pitch of a sound and features 	<ul style="list-style-type: none"> ● Recognise that light appears to travel in straight lines (Y6) ● 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 (Y6)



				<p>of the object that produced it (Y4)</p> <ul style="list-style-type: none"> • Find patterns between the volume of a sound and the strength of the vibrations that produced it (Y4) • Recognise that sounds get fainter as the distance from the sound source increases (Y4) 	<ul style="list-style-type: none"> • 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 (Y6) • Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them (Y6)
	<p>Understand electrical circuits</p>			<ul style="list-style-type: none"> • Identify common appliances that run on electricity (Y4) • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers (Y4) • 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 (Y4) • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit (Y4) 	<ul style="list-style-type: none"> • Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit (Y6) • 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 (Y6) • Use recognised symbols when representing a simple circuit in a diagram (Y6)



				<ul style="list-style-type: none">• Recognise some common conductors and insulators, and associate metals with being good conductors (Y4)	
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