

Science progression

	EYFS	Year 1	Year 2	Lower key stage 2	Upper key stage 2
ENQUIRY SKILLS					
Plan	Choose the resources they need for their chosen activities and say when they do or don't need help.	Ask simple questions and recognising that they can be answered in different ways.	Ask simple questions and recognising that they can be answered in different ways.	Ask relevant questions and using different types of scientific enquiries to answer them. Set up simple practical enquiries, comparative and fair tests.	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
Do	Know about similarities and differences in relation to places, objects, materials and living things. Make observations of animals and plants. Explore a variety of materials, tools and techniques,	Observe closely, using simple equipment. Perform simple tests. Identify and classify.	Observe closely, using simple equipment. Perform simple tests. Identify and classify.	Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers.	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.

	<p>experimenting with colour, design, texture, form and function.</p> <p>Select and use technology for particular purposes.</p>				
Record	<p>Represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.</p>	<p>Gather and record data to help in answering questions.</p>	<p>Gather and record data to help in answering questions.</p>	<p>Gather, record, classify and present data in a variety of ways to help in answering questions.</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</p>	<p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p>

<p>Review</p>	<p>Talk about the features of their own immediate environment and how environments might vary from one another. Explain why some things occur and talk about changes.</p>	<p>Use their observations and ideas to suggest answers to questions.</p>	<p>Use their observations and ideas to suggest answers to questions.</p>	<p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer questions or to refuse ideas and arguments.</p>	<p>Use test results to make predictions to set up further comparative and fair tests. Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Identify scientific evidence that has been used to support or refute ideas or arguments.</p>
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	EYFS	Year1	Year2	Lower Key stage 2	Upper key stage 2
CONTENT					
LIGHT				<p>Year 3</p> <p>Recognise light is needed in order to see things and that dark is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Sunlight is dangerous and eyes should be protected.</p> <p>Recognise shadows are formed when light from a light source is blocked by an opaque object.</p> <p>Find patterns in the way the size of shadows change.</p>	<p>Year 6</p> <p>Recognising light appears to travel in straight lines.</p> <p>Using the idea that light travels in straight lines to explain that objects are seen because they reflect light into the eye.</p> <p>Explain that we see things as 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>
EARTH AND SPACE					<p>Year 5</p> <p>Describe 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>The sun is a star and is at the centre of the solar system. It has eight planets.</p> <p>The moon is a celestial body that orbits a planet.</p> <p>Find out about the way ideas about the solar system have developed, understanding how the geocentric model of the solar system gave way to the heliocentric model by considering the work of</p>
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					<p>Ptolemy, Alhazen and Copernicus.</p> <p>Why some people think that places such as Stone Henge were used by people as astronomical clocks.</p>
FORCES AND MAGNETS				<p>Year 3</p> <p>Compare how things move on different surfaces.</p> <p>Notice that some forces need contact between two 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>Year 5</p> <p>Understand and explain that unsupported objects fall towards the earth due to 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 pulleys, levers and gears allow a smaller force to have a greater effect.</p> <p>They may also find out about key scientists such as Galileo Galilei or Isaac</p>

				<p>Describe magnets as having two poles.</p> <p>Predict whether two magnets will attract or repel each other, depending upon which poles are facing.</p> <p>Explore the strengths of different magnets and find a fair way to compare them.</p> <p>Explore properties of magnets in everyday and suggest uses for them.</p> <p>Year 4</p> <p>Identifying different types of forces such as air resistance, water resistance, friction.</p>	<p>Newton and how they contributed to the theories of gravity.</p>
SOUND		<p>Year 1</p> <p>Listening walks and identifying sounds.</p> <p>Distinguishing between different types of sounds and being able to describe them, for example, plane, train, car,</p>	<p>Year 2</p> <p>Listening walks and identifying sounds.</p> <p>Distinguishing between different types of sounds and being able to describe them, for example, plane, train, car,</p>	<p>Year 4</p> <p>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>Year 5</p> <p>Links to music – pitch, volume etc.</p>

		tractors as well sounds of nature.	tractors as well sounds of nature.	<p>Find patterns between the pitch of sound and the features of the objects that produced it.</p> <p>Find patterns between the volume of the 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>(Find out how pitch and volume can be changed in a variety of ways).</p> <p>(Identifying sounds on sound walks).</p>	
PLANTS		<p>Y1 (Links across to seasonal change)</p> <p>Identify and name a variety of common, wild and garden plants, including</p>	<p>Y2 Observing and describing how seeds and bulbs grow into mature plants, including germination, growth, survival and processes of reproduction (a</p>	<p>Year 3</p> <p>Identify and describe the functions of different flowering plants, including roots, stem, trunk, leaves and flowers.</p> <p>Explore the requirements of plants for life and growth</p>	

		<p>deciduous and evergreen trees.</p> <p>Vocab to name trees/ plants</p> <p>Identify and describe the basic structure of a variety of common flowering plants including trees – leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches and stem.</p>	<p>simple understanding of pollination and seed dispersal).</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>(air, light, water, nutrients from soil and room to grow). How they vary from plant to plant.</p> <p>Investigate how 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 dispersal.</p>	
Rocks				<p><u>Rocks</u></p> <p>Year 3</p> <p>Compare and group different types of rocks based on appearance and physical properties.</p> <p>How fossils are formed.</p>	

				Recognising that soil is made from rocks and organic matter.	
MATERIALS AND CHANGES IN STATE		<p><u>Y1 Everyday Materials</u></p> <p>Naming and identifying materials used to make objects.</p> <p>Name materials including wood, plastic, glass, metal, water and rock.</p> <p>Describe simple physical properties of a variety of everyday materials and consolidate vocabulary from Year R as well as additional vocabulary such as wet, liquid, solid, gloopy,</p>	<p><u>Y2 Uses of Everyday Materials</u></p> <p>Identifying and comparing the suitability of a variety of materials for particular uses.</p> <p>Materials – wood, metal, plastic, glass, brick, rock, paper, cardboard.</p> <p>Find how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p><u>States of Matter</u></p> <p>Year 4</p> <p>Comparing and grouping materials according to solid, liquid or gas.</p> <p>Observe some materials change state when they are heated or cooled.</p> <p>Measure or research the temperature of when that happens (in degrees celsius).</p> <p>Understand evaporation and condensation in the water cycle.</p> <p>Associate the rate of change with temperature.</p>	<p><u>Properties and Changes of Materials</u></p> <p>Year 5</p> <p>Compare and group together materials based on properties including: hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets.</p> <p>Know some materials will dissolve to form a solution.</p> <p>Describe how to recover a substance from a solution.</p> <p>Decide how mixtures can be separated by filtering, sieving and evaporating.</p> <p>Give reasons for particular uses for everyday materials including metal, wood and plastic based on their own experiments and fair test.</p>

		<p>hard, stretchy, stiff, shiny, dull, bendy, not bendy, waterproof, not waterproof, absorbent, non-absorbent, opaque and transparent.</p> <p>Broadening their vocabulary to further describe such as bumpy, spiky. Grouping a variety of materials based on their physical properties.</p>	<p>Look at people who have developed new materials, such as Dunlop, McAdams and Mackintosh.</p>		<p>Demonstrate that dissolving, mixing and changes of state are reversible.</p> <p>Explain that some changes result in the formation of new materials and that this is not normally reversible.</p> <p>Research chemists such as Spencer Silver and Ruth Benorito.</p>
SEASONAL CHANGES		<p>Y1 Name the seasons, observe and identify the changes that occur within those seasons.</p>		<p>Year 3 (Understanding it is not safe to look directly at the sun even when wearing dark glasses – Light).</p>	<p>Year 5 (Understand the idea of the earth's rotation to understand day and night and the apparent movement of the sun – Earth and Space).</p>

		<p>Discuss weather related to those seasons.</p> <p>Understanding it is not safe to look directly at the sun.</p>			
LIVING THINGS IN THEIR HABITATS			<p>Y2 Compare living, dead, never been alive</p> <p>Adaption/ suited to habitats.</p> <p>How habitats support living things.</p> <p>Identify and name variety of plants and animals and their habitats including microhabitats</p> <p>How animals use plants and other animals for food. Simple food</p>	<p>Year 4 Grouping living things in variety of ways</p> <p>Know terms: vertebrate, fish, amphibians, reptiles, birds, mammals, invertebrates Snails, worms, spiders, insects</p> <p>Classification keys- use to identify in local and wider environment</p> <p>Environments can change and pose dangers to living things.</p> <p>Litter/ deforestation etc positive effects of nature reserves, garden ponds</p>	<p>Year 5 Lifecycle differences: mammal, insect, bird, amphibian.</p> <p>Describe life process of reproduction in some plants and animals.</p> <p>Sexual and Asexual reproduction in plants</p> <p>Sexual reproduction in animals</p> <p>Key scientists/ behaviourists associated eg Attenborough.</p> <p>Year 6 Describe how living things are classified into groups</p>

			chain. Identify/ name sources of food. Intro habitat/ microhabitat		according to observable similarities and differences (more detail than yr 4- sub divisions) Give reasons for classifying related to characteristics Related scientists- Carl Linnaeus
ANIMALS INCLUDING HUMANS		Y1 Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, omnivores and herbivores. Describe and compare the structure of a variety of	Y2 Know that animals including humans have offspring which grow into adults (possible life cycles) . Find out about and describe basic needs of animals, including humans for survival. Describe the importance for humans, the importance of exercise, eating	Year 3 Identify that animals including humans need the right types and amount of nutrition, they cannot make their own food and they get nutrition from what they eat. Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Introduce them to the main body parts associated with the skeleton and muscles and how different parts of the body have special functions.	Year 5 Describe changes as humans develop to old age (including puberty, gestation periods of animals compared to humans). Year 6 Identify and name the main parts of the human circulatory system. Describe functions of heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs and lifestyle on body function.

		<p>common animals (as above).</p> <p>Identify, name, draw and label basic parts of the human body and say which part is associated with which sense.</p> <p>(Links to local environment).</p>	<p>the right amount of different foods and hygiene.</p>	<p>Understand how different food groups contribute to different parts of the body remaining healthy, for example, calcium assisting bone growth and repair.</p> <p>Year 4 Describe the simple functions of the basic parts of the digestive system in humans. Know and name main body parts associated with the digestive system (that is, mouth, tongue, teeth, oesophagus, stomach, small and large intestine).</p> <p>Identify the different types of teeth in humans and their simple functions. Comparing teeth of carnivores and herbivores, finding out what damages teeth and how to look after them.</p> <p>Construct and interpret a variety of food chains,</p>	<p>Describe ways in which water and nutrients are transported in animals and humans.</p> <p>Children to build upon knowledge learnt in Years 3 and 4 to explain further the functions of body parts.</p>
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				identifying producers, predators and prey.	
ELECTRICITY				<p>Year 4</p> <p>Identify electrical appliances.</p> <p>Construct a simple series of electrical circuits.</p> <p>Identify cells, wires, bulbs, switches and buzzers.</p> <p>Identify if a circuit is a complete loop or not.</p> <p>Know that a switch opens and closes a circuit and that this affects if the lamp is on.</p> <p>Recognise some common conductors and insulators.</p> <p>Associate metals with being good conductors.</p>	<p>Year 6</p> <p>Associate the brightness of a lamp or the volume of a buzzer by the number and voltage of cells used in a circuit.</p> <p>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</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p>
Evolution and inheritance					<p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p>

					<p>Recognise that living things produce offspring of the same 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>
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