

Progression of Skills In Science

	KEY SKILLS	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Working Scientifically	Planning	Begin to ask relevant questions and using different types of scientific enquiries to answer them Begin to set up simple practical enquiries comparative and fair tests	Ask relevant questions and using different types of scientific enquiries to answer them Set up simple practical enquiries, comparative and fair tests	Begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
	Observing	Begin to make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, Begin to use a range of equipment, including thermometers and data loggers	Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	Begin to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
	Recording	Begin to gather, record, classify and present data in a variety of ways to help in answering the question Begin to record findings using simple scientific language, drawings, labelled diagrams, bar charts, and tables Begin to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Gather, record, classify and present data in a variety of ways to help in answering the question Record findings using simple scientific language, drawings, labelled diagrams, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Begin to use test results to make predictions to set up further comparative and fair tests Begin to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	Use test results to make predictions to set up further comparative and fair tests recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs

	Concluding	<p>Begin to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>Begin to report on findings from enquiries, including oral and written, displays or presentations of results and conclusions</p> <p>Begin to identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>Begin to use straightforward scientific evidence to answer questions or to support their findings</p>	<p>Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>Report on findings from enquiries, including oral and written, displays or presentations of results and conclusions</p> <p>Identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>Use scientific evidence to answer questions or to support findings</p>	<p>Begin to 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</p>	<p>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</p>
	Evaluating	<p>Begin to use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.</p>	<p>Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.</p>	<p>Begin to identify scientific evidence that has been used to support or refute ideas or arguments</p>	<p>Identify scientific evidence that has been used to support or refute ideas or arguments</p>
Biology	Plants	<p>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. 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. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>			

	Animals including humans	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. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	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. Construct and interpret a variety of food chains, identifying producers, predators and prey.	Describe the changes as humans develop to old age.	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 lifestyle on the way their bodies function. Describe the ways in which nutrients and water are transported within animals, including humans.
	All Living Things		Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things.	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals.	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. Give reasons for classifying plants and animals based on specific characteristics.
	Evolution and Inheritance				Develop an understanding of the development of evolutionary ideas and theories over time. Explain how human evolution has occurred and compare modern humans with those of the same genus and family. Understand that adaptation and evolution is not a uniform process for all living things.

					<p>Give examples of selective and crossbreeding.</p> <p>Explain the terms adaptation, evolution and natural selection and use these in context.</p> <p>Describe how living things evolve via the process of natural selection.</p> <p>Explain in simple terms what genes and DNA are.</p> <p>Investigate the ethical issues of human intervention in the process of evolution by natural selection.</p>
Che mis try				<p>Properties of Materials and Change</p> <p>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. 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</p>	

				<p>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>	
	Rocks	<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>			
	States of Matter		<p>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</p>		

			rate of evaporation with temperature.		
	Sound		Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases.		
	Light	Understand that dark is the absence of light. Set up an investigation and make predictions. Understand how surfaces reflect light. Recognise that a mirror appears to reverse an image. Identify some parts of the eye. Understand how the sun can damage parts of the eye. Identify opaque, translucent and transparent objects. Know how shadows change size.			

		<p>Explain the properties of materials that reflect light well.</p> <p>Understand why shadows change size.</p> <p>Set up reliable and accurate investigations.</p> <p>Make and explain predictions.</p> <p>Make and record accurate observations.</p> <p>Use scientific language to explain their findings.</p> <ul style="list-style-type: none"> • Be able to ask and answer questions based on their learning using scientific language. 			
	Forces and Magnets	<p>Compare how things move on different surfaces. 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. 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 two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>		<p>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>	
	Electricity		<p>Identify common appliances that run on electricity.</p>		<p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used</p>

			<p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. 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. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors.</p>		<p>in the circuit. 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. Use recognised symbols when representing a simple circuit in a diagram.</p>
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Current Science Topic Map

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	Rocks	Animals, Including Humans	Light	Forces And Magnets	Plants	
Year 4	Living Things	Animals, Including Humans - Digestion, Teeth And Food Chains		States Of Matter	Electricity	Sound applying knowledge of about solids, liquids and gases to learning about how sound travels through different mediums.
Year 5	Forces before earth and space to build the foundations	Properties And Changes Of Materials		Animals, Including Humans	Earth And Space	Living Things And Their Habitats

	of knowledge about gravity as a force					
Year 6	Animals Including Humans	Light	Evolution And Inheritance	Electricity	Living Things And Their Habitats	Environmental /Climate Change Project Based Work (To Be Decided]
Whole School Projects				Annual National Science and Engineering Week		