

Science Skills Progression

Threshold Concept	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Ask simple questions and recognising that they can be answered in different ways		Asking relevant questions and using different types of scientific enquires to answer them		Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	
	Observing closely using simple equipment		Setting up simple practical enquiries, comparative and fair tests		Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	
	Perform simple tests		Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a wide range of equipment, including thermometers and data loggers		Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	
	Identifying and classifying		Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions		Using test results to make predictions to set up further comparative and fair tests	
	Using their observations and ideas to suggest answers to questions		Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables		Reporting and representing finding 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	
	Gathering and recording data to help in answering questions		Recording on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions		Identify scientific evidence that has been used to support or refute ideas or arguments	
			Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions			
			Identifying differences, similarities or changes related to simple scientific ideas and processes			
			Using straightforward scientific evidence to answer questions or to support their findings			

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Plants	Pupils should be taught to identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	Pupils should be taught to observe and describe how seeds and bulbs grow into mature plants	Pupils should be taught to identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers	
	Pupils should be taught to identify and describe the basic structure of a variety of common flowering plants, including trees.	Pupils should be taught to find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	Pupils should be taught to 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	
			Pupils should be taught to investigate the way in which water is transported within plants	
			Pupils should be taught to explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	
Animals including humans	Pupils should be taught to identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals	Pupils should be taught to notice that animals, including humans, have offspring which grow into adults	Pupils should be taught 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 Pupils should be taught to describe the simple functions of the basic parts of the digestive system in humans	Pupils should be taught to describe the changes as humans develop to old age. Pupils should be taught to identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
	Pupils should be taught to identify and name a variety of common animals that are carnivores, herbivores and omnivores	Pupils should be taught to find out about and describe the basic needs of animals, including humans, for survival (water, food and air)	Pupils should be taught to identify that humans and some other animals have skeletons and muscles for support, protection and movement Pupils should be taught to identify the different types of teeth in humans and their simple functions	Pupils should be taught to recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function

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		Pupils should be taught to describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	Pupils should be taught to construct and interpret a variety of food chains, identifying producers, predators and prey	Pupils should be taught to describe the ways in which nutrients and water are transported within animals, including humans.
Living things and their Habitats		Pupils should be taught to explore and compare the differences between things that are living, dead, and things that have never been alive	Recognise that living things can be grouped in a variety of ways.	Pupils should be taught to describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Pupils should be taught 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
		Pupils should be taught 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	Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	Pupils should be taught to describe the life process of reproduction in some plants and animals. Pupils should be taught to give reasons for classifying plants and animals based on specific characteristics.
		Pupils should be taught to identify and name a variety of plants and animals in their habitats, including micro-habitats	Recognise that environments can change and that this can sometimes pose dangers to living things	
		Pupils should be taught to describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and		

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		identify and name different sources of food.		
Evolution and inheritance				Pupils should be taught 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
				Pupils should be taught to recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
				Pupils should be taught to identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
Everyday materials	Pupils should be taught to distinguish between an object and the material from which it is made	Pupils should be taught 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		Pupils should be taught 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
	Pupils should be taught to identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock	Pupils should be taught to find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching		Pupils should be taught to know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution

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	Pupils should be taught to describe the simple physical properties of a variety of everyday materials			Pupils should be taught to use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
	Pupils should be taught to compare and group together a variety of everyday materials on the basis of their simple physical properties.			Pupils should be taught to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
				Pupils should be taught to demonstrate that dissolving, mixing and changes of state are reversible changes
				Pupils should be taught 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.
States of matter			Pupils should be taught to compare and group materials together, according to whether they are solids, liquids or gases	
			Pupils should be taught 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)	
			Pupils should be taught to identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	
Seasonal changes	Pupils should be taught to observe changes across the four seasons			

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	Pupils should be taught to observe and describe weather associated with the seasons and how day length varies			
Rocks			Pupils should be taught to compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	
			Pupils should be taught to describe in simple terms how fossils are formed when things that have lived are trapped within rock	
			Pupils should be taught to recognise that soils are made from rocks and organic matter.	
Light			Pupils should be taught to recognise that they need light in order to see things and that dark is the absence of light	Pupils should be taught to recognise that light appears to travel in straight lines
			Pupils should be taught to notice that light is reflected from surfaces	Pupils should be taught 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
			Pupils should be taught to recognise that light from the sun can be dangerous and that there are ways to protect their eyes	Pupils should be taught 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
			Pupils should be taught to recognise that shadows are formed when the light from a light source is blocked by a solid object	Pupils should be taught to use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
			Pupils should be taught to find patterns in the way that the size of shadows change.	
Electricity			Pupils should be taught to identify common appliances that run on electricity	Pupils should be taught to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit

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			Pupils should be taught to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.	Pupils should be taught 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
			Pupils should be taught 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	Pupils should be taught to use recognised symbols when representing a simple circuit in a diagram.
			Pupils should be taught 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	
			Pupils should be taught to recognise some common conductors and insulators, and associate metals with being good conductors	
Forces and Magnets			Pupils should be taught to compare how things move on different surfaces	Pupils should be taught to explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
			Pupils should be taught to notice that some forces need contact between two objects, but magnetic forces can act at a distance	Pupils should be taught to identify the effects of air resistance, water resistance and friction, that act between moving surfaces
			Pupils should be taught to observe how magnets attract or repel each other and attract some materials and not others	Pupils should be taught to recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
			Pupils should be taught 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	
			Pupils should be taught to describe magnets as having two poles	
			Pupils should be taught to predict whether two magnets will attract or repel each other, depending on which poles are facing.	

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Earth and Space				Pupils should be taught to describe the movement of the Earth, and other planets, relative to the Sun in the solar system
				Pupils should be taught to describe the movement of the Moon relative to the Earth
				Pupils should be taught to describe the Sun, Earth and Moon as approximately spherical bodies
				Pupils should be taught to use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.
Sound			Pupils should be taught to identify how sounds are made, associating some of them with something vibrating	
			Pupils should be taught to recognise that vibrations from sounds travel through a medium to the ear.	
			Pupils should be taught to find patterns between the pitch of a sound and features of the object that produced it.	
			Pupils should be taught to find patterns between the volume of a sound and the strength of the vibrations that produced it.	
			Pupils should be taught to recognise that sounds get fainter as the distance from the sound source increases.	