



Sutton Bonington
Primary School

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Science Progression Map – Knowledge and Skills



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Key Idea	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Substantive Concepts						
Biology: Plants	A plant is a living thing. The main parts of a plant are the stem, leaves, and roots. Plants can be grown by people or grow in the wild.	Seeds and bulbs grow into mature plants. Plants need water, light, and a suitable temperature to grow and stay healthy.	Flowering plants have roots, a stem/trunk, leaves, and flowers. Plants require air, light, water, nutrients from the soil, and room to grow. Water is transported within plants in vessels. Flowers play an important role in the life cycle of flowering plants, including pollination, seed formation, and seed dispersal.			
Biology: Animals including humans	Animals can be grouped into fish, amphibians, reptiles, birds, and mammals by their structural features. Animals can be grouped into carnivores, herbivores, and omnivores by the food they eat. The human body is made of many different parts; each has its own function. Humans have five senses: sight, hearing, touch, taste, and smell. Each sense uses different body parts.	Animals, including humans, have offspring which grow into adults. The basic needs of animals, including humans, for survival include water, food, and air. To remain healthy it is important for humans to exercise, eat the right amounts of different types of food, and have good hygiene.	Animals, including humans, need the right types and amount of nutrition. Animals cannot make their own food; they get nutrition from what they eat. Humans and some other animals have skeletons and muscles for support, protection, and movement.	The human digestive system contains a number of organs including the mouth, stomach, oesophagus, and intestines. The main types of human teeth are incisors, canines, molars, and premolars. Each type of tooth looks different and has a different function.	Humans experience a number of changes as they develop to old age.	The main parts of the human circulatory system include the heart, blood vessels, and blood. Nutrients and water are transported within animals, including humans, in the blood. Diet, exercise, drugs, and lifestyle can all affect the way our bodies function.
Biology: Living things and their habitats		Things can be living, dead, or never been alive. Plants and animals live in a variety of habitats, including microhabitats. Most living things live in habitats to which they are suited. Habitats provide for the basic needs of different kinds of animals and plants. The living things in a habitat depend on each other for survival. Animals obtain their food from plants and other animals. This can be shown using a simple food chain.		Living things can be grouped in a variety of ways. Classification keys can be used to help group, identify and name living things. Environments can change and this can sometimes pose dangers to living things.	There are differences in the life cycles of mammals, amphibians, insects, and birds. Plants and animals produce offspring by the life process of reproduction.	Living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants, and animals.
Biology: Evolution and Inheritance						Living things have changed over time. Fossils provide information about living things that inhabited Earth millions of years ago.

						Living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
Physics: Seasonal changes	There are four seasons—autumn, winter, spring, and summer. Different types of weather are associated with different seasons. Day length varies in different seasons.					
Chemistry: Materials	Objects can be made from a variety of materials. Everyday materials include wood, plastic, glass, metal, water, and rock. Different materials have different physical properties.	Everyday materials include wood, metal, plastic, glass, brick, rock, paper, and cardboard. The material chosen to make an object or device is based on the suitability of its properties. The shapes of solid objects made from some materials can be changed by squashing, bending, twisting, and stretching.	Rocks can be grouped by their appearance and simple physical properties. Fossils are formed when things that have lived are trapped within rock. Soils are made from rocks and organic matter.	Materials can be grouped according to whether they are solids, liquids, or gases. Materials can change state when they are heated or cooled—this happens at different temperatures for different materials. Evaporation and condensation are key processes in the water cycle. Rate of evaporation is affected by temperature.	The properties of materials include their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. The particular uses of everyday materials, including metals, wood, and plastic depend on their properties. Some materials will dissolve in liquid to form a solution. Mixtures can be separated using filtering, sieving, and evaporating. Dissolving, mixing, and changes of state are reversible changes. Changes that result in the formation of new materials are not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	
Physics: Light and Sound			Light is needed to see things. Darkness is the absence of light. Light is reflected from surfaces. Light from the sun can be dangerous, and eyes should be protected from sunlight. Shadows are formed when the light from a light source is blocked by an opaque object. There are patterns in the way that the size of shadows change.	Sounds are made when something vibrates. Vibrations from sounds travel through a medium to the ear. The pitch of a sound is affected by how quickly an object vibrates. The volume of a sound is determined by the strength of the vibrations that produced it. Sounds get fainter as the distance from the sound source increases.		Light travels in straight lines. Objects are seen because they give out or reflect light into the eye. We see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. As light travels in straight lines shadows have the same shape as the objects that cast them.
Physics: Forces and magnets			Objects experience different amounts of friction on different surfaces. Some forces need contact between two objects, but magnetic forces can act at a distance. Some materials are magnetic, meaning they are attracted to a magnet. Magnets have two poles. Magnets can attract or repel each other, depending on which poles are facing each other.		Unsupported objects fall towards Earth because of the force of gravity acting between Earth and the falling object. Air resistance, water resistance, and friction act between moving surfaces. Some mechanisms including levers, pulleys, and gears allow a smaller force to have a greater effect.	
Physics: Electricity				The brightness of a lamp or the volume of a buzzer is associated		The brightness of a lamp or the volume of a buzzer is associated

				with the number and voltage of cells used in the circuit. Switches can be used to turn components on and off in a circuit. Circuit symbols are used when representing a simple circuit in a diagram.		with the number and voltage of cells used in the circuit. Switches can be used to turn components on and off in a circuit. Circuit symbols are used when representing a simple circuit in a diagram.
Physics: Earth and Space					Earth and other planets in the Solar System orbit around the Sun. The Moon orbits round Earth. The Sun, Earth, and the Moon are approximately spherical bodies. The rotation of Earth results in day and night, and the apparent movement of the Sun across the sky.	
Disciplinary Concepts						
	Years 1 & 2		Years 3 & 4		Years 5 & 6	
DC1: Asking scientific questions	Asking simple questions and recognising that they can be answered in different ways.		Asking relevant questions and using different types of scientific enquiries to answer them. Using results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions.		Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.	
DC2: Planning scientific enquiries			Setting up simple practical enquiries, comparative and fair tests.		Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.	
DC3: Using scientific equipment	Observing closely, using simple equipment.		Setting up simple practical enquiries, comparative and fair tests. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.		Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.	
DC4: Taking measurements and observations	Observing closely, using simple equipment. Performing simple tests.		Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Identifying differences, similarities, or changes related to simple		Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Using test results to make predictions to set up further comparative and fair tests.	
DC5: Recording data	Gathering and recording data to help in answering questions.		Gathering, recording, classifying, and presenting data in a variety of ways to help in answering questions. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.		Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs.	
DC6: Presenting data	Identifying and classifying		Gathering, recording, classifying, and presenting data in a variety of ways to help in answering questions. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Reporting on findings from enquiries, including oral and written explanations, displays, or presentations of results and conclusions.		Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs. Reporting and presenting findings from enquiries, including conclusions, causal relationships, explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.	
DC7: Forming conclusions	Using their observations and ideas to suggest answers to questions.		Asking relevant questions and using different types of scientific enquiries to answer them. Using results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions. Using straightforward scientific evidence to answer questions or to support their findings.		Identifying scientific evidence that has been used to support or refute ideas or arguments.	

DC8: Using models		Reporting on findings from enquiries, including oral and written explanations, displays, or presentations of results and conclusions.	Reporting and presenting findings from enquiries, including conclusions, causal relationships, explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
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