The Wider Curriculum at St Alban's

Science: Progression of skills

Intent: *Our wider curriculum enables each child to be a curious, enthusiastic and confident learner for life and an active and caring member of our school family and wider society.*

	Year one	Year two	Year three	Year four	Year five	Year six
Working Scientifically skills	**Opportunities to develop these skills are integrated into all KS1 science teaching:** Asking simple questions and recognising that they can be answered in different ways; Observing closely, using simple equipment; Performing simple tests; Identifying and classifying; Using observations and ideas to suggest answers to questions; Gathering and recording data to help in answering questions.		**Opportunities to develop these skills are integrated into all lower-KS2 science teaching:** Asking relevant questions and using different types of scientific enquiries to answer them; 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; Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions; Recording findings using simple		**Opportunities to develop these skills are integrated into all upper KS2 science teaching:** Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; 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, bar and line graphs; Using test results to make predictions to set up further comparative and fair tests;	

		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; 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 my findings.	Reporting and presenting 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; Identifying scientific evidence that has been used to support or refute ideas or arguments.

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Animals including Humans	Identify and name creatures, and classify by diet. Describe the structure of common animals. Identify basic parts of the human body and associated senses.	Know that animals have offspring which grow into adults. Investigate the basic survival needs of animals. Explore the importance of exercise, diet, and hygiene.	Identify that animals, including humans, need the right types and amount of nutrition, how they obtain it. Explore the role of a skeleton in a body.	Describe the basic digestive system in humans. Identify the different types of teeth in humans and their simple functions. Construct and interpret food chains.	Describe the changes as humans develop from birth to old age.	Identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function.

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Living things and their Habitats		Categorise living, dead, and never alive. Identify how habitats provide for needs, and note interdependence. Identify and name plants and animals in their habitats. Construct simple food chains		Group living things in different ways. Use classification keys to group, identify and name living things in their local and wider environment. Recognise how changes in environments can 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. Give reasons for classifying plants and animals based on specific characteristics

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Plants	Identify and name a variety of common plants and classify trees as deciduous or evergreen. Identify and describe the basic structure of a variety of common plants.	Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	Identify/describe the functions of parts of plants, and what plants need to live and grow. Investigate how water is transported in plants, and the role of flowers in the life cycle of flowering plants.			

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Materials	Identify / name everyday materials, distinguishing between the object and the material. Describe the simple properties of everyday materials, comparing and grouping them on the basis of physical properties.	Identify and compare the suitability of a variety of everyday for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Compare and group rocks on the basis of their appearance and simple physical properties. Describe how fossils are formed. Recognise that soils are made from rocks and organic matter.	Compare and group materials together, as solids, liquids or gases. Observe/ record how temperature changes when materials change state. Explore evaporation and condensation in the water cycle.	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.	

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Forces			Compare how things move on different surfaces. Investigate magnetic and non-magnetic materials, and know that magnets have two poles. Observe attraction / repulsion and predict whether two magnets will attract or repel each other.		Explore the effect of gravity on unsupported objects. Investigate air resistance, water resistance and friction. Recognise that some mechanisms, allow a smaller force to have a greater effect.	

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Electricity				Identify common electrical appliances. Construct a simple series electrical circuit, and investigate the role of a lamps and switches in a simple series circuit. Identify common conductors / insulators.		Explain how variations in the power of batteries affect volume or brightness, and compare and explain how components vary and function in the circuit. Use recognised symbols to represent a simple circuit in a diagram.

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Light			Define light and dark, and notice that light is reflected from surfaces. Know that sunlight can be dangerous and that there are ways to protect their eyes. Recognise how shadows are formed, and find patterns in the way that the sizes of shadows change.	.		Recognise that light appears to travel in straight lines 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 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 Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

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Other topics featured in one year group only	**<u>Seasonal change:</u>** Observe and describe weather associated with the seasons and how day length varies. Observe changes across the four seasons.			**<u>Sound:</u>** To be able to identify how sounds are made, and how vibrations travel. To find patterns between the pitch of a sound and features of the object that produced it To find patterns between the volume of a sound and the strength of vibrations, and to recognise that sounds get fainter as the distance from the sound source increases.	**<u>Earth and space:</u>** To describe the movement of the Earth, and other planets, relative to the Sun. To describe the Sun, Earth and Moon as approximately spherical bodies. To describe the movement of the Moon relative to the Earth. To explain day and night and the apparent movement of the Sun across the sky in terms of the Earth's rotation.	**<u>Evolution:</u>** To recognise that living things have changed over time and that fossils provide information about living things in the past. To recognise that living things produce offspring of the same kind, but normally offspring are not identical to their parents. To identify adaptations to suit environment in different ways and that adaptation may lead to evolution.

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Study of a topical issue in science	Recycling (taught as part of the **everyday materials** topic)	Plastics use (taught as part of the **uses of materials** topic)	Fossil fuels and their impact on the environment (taught within **materials** topic)	Maritime pollution and the threat to wildlife (taught within **living things and their habitats)**	Wildlife conservation and threat to habitat (taught within **living things and their habitats)**	Alternative sources of electricity and the environmental impact (taught as part of the **electricity** topic)

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Study of a scientist/ discovery	David Attenborough (taught within **Animals including humans**)	John Dunlop (taught within **Uses of Materials** topic)	Mary-Anning (taught within the **Rocks** topic)	Alexander Fleming (taught within the **Animals including Humans** topic)	Jane Goodall (taught within **living things and their habitats)**	Charles Darwin (taught within **evolution** topic)

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STEM challenge	Create a weather station (seasonal change)	(x curr with DT) – select materials to create a marionette using recycled materials	Create your own fossil	Create a model of the digestive system	Independent investigation programme throughout the year.	Create your own science game