Progression in science knowledge at St Stephen's

Theme	Year 3	Year 4	Year 5	Year 6
Living things and their habitats. **(Plants and Living things)**	* Know the names of the different parts of a **plant** (roots, stem, leaves, flower, petals). * Identify the parts of a **plant** (match vocabulary to images or real plant parts). * Know the **functions** of the different parts of a **plant** (roots to anchor and obtain water & nutrients, stem to transport water and hold the flower, leaves to collect sunlight for food & flower for pollination). * Know what plants need to live and grow. * Know how water is transported in plants. * Know the stages in the life cycle of a plant (germination, growth, flowering, and fertilisation/seed production). * Know that plants disperse seeds and why they do this (for reproduction).	* To recognise that living things can be grouped in a variety of ways by sorting living things into a range of groups. * To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. * To explore and use classification keys by using keys to identify invertebrates found in the local environment. * To recognise that environments can change and that this can sometimes pose dangers to living things by identifying changes and dangers in the local habitat. * To recognise environmental dangers and endangered species.	* To describe the life process of reproduction in some plants and animals by exploring sexual reproduction in plants. * To describe the life process of reproduction in some plants and animals by exploring sexual reproduction in plants. * To describe the life cycle of a mammal by exploring the life cycles of mammals in different habitats. * To describe the life process of reproduction in some plants and animals by describing sexual reproduction in mammals. * To describe the differences in the life cycles of an amphibian and an insect by exploring complete and incomplete metamorphosis. * To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird by describing and comparing different life cycles, including birds.	* Be able to use and create a classification key to sort different plants. * Identify how plants are adapted to suit their environment (what features have been developed and why?). * Find out about the work of paleontologists.
Electricity:	NONE	* Identify common appliances that run on electricity by learning to distinguish between appliances that	NONE	*Know the **scientific symbols** for electrical components.

		use and do not use electricity, about the different types of electricity and identifying how to stay safe when using electricity. * 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 by visualising and testing circuits to see if the circuit is complete. * Recognise some common conductors and insulators, and associate metals with being good conductors by testing different materials as part of circuit to see whether or not they conduct electricity.		* Be able to **draw** a series circuit using the internationally recognised scientific symbols. * Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. * Understand how to stay safe when using electricity.
Classification:	* Be able to compare and group animals by their diet. * Compare the skeletons of different animals.	*Classification takes place within other modules.	*Classification takes place within other modules.	* Understand what makes something a living thing. * Understand that broad groupings learnt about in year 4, such as micro-organisms, plants and animals can be **subdivided**. * Use a **dichotomous key** to sort organisms.

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				* **Make** a dichotomous key sort plants. * **Make** a dichotomous key to sort animals.
Animals including humans:	* Understand that animals need the right types and amount of nutrition * Be able to compare and group animals by their diet. * Be able to explain the functions of a skeleton. * Compare the skeletons of different animals. * Understand how muscles help animals move	* To describe the simple functions of the basic parts of the digestive system in humans in the context of identifying the parts of the digestive system. * To describe the simple functions of the basic parts of the digestive system in humans by explaining the functions of different parts of the digestive system. * To identify the different types of teeth in humans and their simple functions by learning about the different types of teeth. * To identify differences, similarities or changes related to simple scientific ideas and processes by comparing human and animal teeth. * To set up simple practical enquiries, comparative and fair tests by setting up an enquiry or test to understand what causes tooth decay. * To construct and interpret a variety of food chains, identifying producers, predators and prey by	* Describe the changes as humans develop to old age by drawing a timeline to indicate stages in the growth and development of humans. * Describe the changes as humans develop to old age in the context of the development of babies in their first year. * Record data and results of increasing complexity using bar and line graphs in the context of the growth of babies in height and/or weight during their first year after birth. * Describe the changes as humans develop to old age by comparing the changes that take place to boys and girls during puberty. * Describe the changes as humans develop to old age by understanding the changes that take place in old age. * Report findings from enquiries, including oral and written explanations of results in the context of the gestation period for animals.	* Identify and name the main parts of the human heart. Undertake a dissection of an animal heart. * Understand how the circulatory system works. * Recognise the impact of diet on the body. * Identify the different food groups and their function. * Understand how drugs impact the body. * Understand the importance of exercise. * Understand how water and nutrients are transported in humans. * Identify how animals are adapted to suit their environment. * Understand that living things have changed over time and how adaptation may lead to evolution.

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		understanding food chains and the role of different plants and animals within them.	* Record data and results of increasing complexity using bar and line graphs, and models in the context of comparing gestation periods and life expectancies of animals.	* Understand that living things produce offspring of the same kind, but not identical to their parents.
Light & sound:	* Identify light sources. * Investigate reflection. * Explore sun safety. * Understand how shadows are formed.	*To identify how sounds are made, associating some of them with something vibrating, by identifying and explaining sound sources around school. * To find patterns between the volume of a sound and the strength of the vibrations that produced it, by performing a dramatisation of how sounds travel. * To recognise that vibrations from sounds travel through a medium to the ear, by performing a dramatisation of how sounds travel and by exploring how high and low sounds are created. * To find patterns between the pitch of a sound and features of the object that produced it, and explaining how pitch can change. * To recognise that sounds get fainter as the distance from the	NONE	* Understand that light travels in straight lines. * **Understand how light travels compared to sound** and why light therefore travels faster. * Understand how we see things (how light travels, reflects off an object and into our eyes). * Understand why shadows have the same shape as the objects that cast them. * Understand how the human eye works. * Understand about the light spectrum.

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		sound source increases, by exploring how sounds change over distance. * To find patterns between the pitch of a sound and features of the object that produced it, by making a musical instrument and explaining how it works.		
Forces:	* Investigate the effects of friction. * Observe how magnets attract and repel. * Investigate the strength of magnets. * Identify magnetic and non-magnetic material. * Explore magnetic poles.	NONE	* To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object by identifying forces acting on objects. * To identify the effects of air resistance, water resistance and friction by identifying forces acting on objects. * To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object by measuring the force of gravity pulling on objects. * To identify the effects of air resistance by investigating the best parachute to slow a person down. *To explore and investigate the effects of water resistance. *To explore, investigate and identify the effects of friction on a range of different objects.	NONE

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			* To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect by exploring and designing a simple mechanism.	
Material & states of matter:	* Compare different kinds of rocks based on their appearance and physical properties. * Explore soil formation. * Explore soil composition. * Explain how fossils are formed.	* To compare and group materials together, according to whether they are solids, liquids or gases by sorting and describing materials into solids, liquids and gases. * To compare and group materials together, according to whether they are solids, liquids or gases by investigating gases and their uses.	* To compare and group together everyday materials on the basis of their properties, including their hardness, transparency and response to magnets by sorting and classifying materials according to their properties. * To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and	* Understand how fossils can teach us about living things that inhabited the Earth millions of years ago. * Re-create an extinct animal (models, drawing, paintings, computer generated images etc) from a fossil form.

		* 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) by investigating how heating and cooling can change a material's state. * 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) by exploring how water can change its state to a solid, liquid or a gas. * To make systematic, careful and accurate observations and measurements and report on findings from enquiries by displaying results and conclusions by investigating the effect of temperature on rates of evaporation.	plastic by investigating thermal conductors and insulators. * To compare and group together everyday materials on the basis of their thermal conductivity by investigating thermal conductors and insulators. * To know that some materials will dissolve in liquid to form a solution by investigating dissolving. * To compare and group together everyday materials on the basis of their solubility by investigating dissolving. * To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating by separating different mixtures. * 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 by identifying and observing irreversible chemical changes.	