Science - Curriculum Overview

	Year 1 / 2 Year A	Year 1 / 2 Year B	Year 3 / 4 Year A	Year 3/ 4 Year B	Year 5 / 6 Year A	Year 5 / 6 Year B
Autumn 1	Material World: Everyday Material	Changing Materials: Everyday Materials	How stuff works Y4 Electricity	Nurturing Nature Y3 Plants	Earth and Space	Evolution and inheritance
Autumn 2	Material World: Properties	Changing Materials: Properties	Y3 Forces & Magnets	Y4 Living Things	Scientists and Inventors	Scientists and Inventors
Spring 1	Looking After Plants: Plants	Animal Safari: Habitats	*Antarctica to Amazon* *Y4 State Matter*	Archaeology Rocks Y3	Forces (Gravity, Air resistance, water resistance, friction and mechanisms)	Light
Spring 2	Looking After Plants: Seasonal Changes	Animal Safari: Classification	Y4 Living Things and their habitats	Animals - Y3	Properties and changes of materials	Electricity
Summer 1	Animals, Humans and Staying Healthy	How Does Your Garden Grow?	The Amazing Human Body Y3 Animals including humans	*Movie Magic* *Y3 Light*	Living things and their Habitats	Living things and their Habitats
Summer 2	Animals, Humans and Staying Healthy	How Does Your Garden Grow?	Y4 - Animals	Y4 Electricity	Animals including Humans	Animals Including Humans

Trips / Visitors	Year 1/2 - Trip to Woodlands Park Year 3/4 Trip to Dalby Forest as part of Living Things & Habitats
How do we make our Science curriculum relevant to St Joseph's	Exploring plants in our local area. Habitats in the school grounds.

Science

Working Scientifically	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
	Ask 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**	**Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary**
	Observe 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 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**
	Identify and classify	**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**
	Use 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 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**
	Gather and record data to help in answering questions.	**Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions**	**Identifying 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.	

Plants	**Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees**	**Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers**	
	Identify and describe the basic structure of a variety of common flowering plants, including trees.	**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**	
	Observe and describe how seeds and bulbs grow into mature plants	**Investigate the way in which water is transported within plants**	
	Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	**Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.**	

Seasonal	**Observe changes across the four seasons**		
	Observe and describe weather associated with the seasons and how day length varies.		

Animals, including humans	**Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals**	**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**	**Describe the changes as humans develop to old age.**
	Identify and name a variety of common animals that are carnivores, herbivores and omnivores	**Identify that humans and some other animals have skeletons and muscles for support, protection and movement.**	**Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood**
	Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	**Describe the simple functions of the basic parts of the digestive system in humans**	**Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function**
	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	**Identify the different types of teeth in humans and their simple functions**	**Describe the ways in which nutrients and water are transported within animals, including humans.**

	Notice that animals, including humans, have offspring which grow into adults	**Construct and interpret a variety of food chains, identifying producers, predators and prey.**	
	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)		
	Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.		

Everyday materials	**Distinguish between an object and the material from which it is made**		
	Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock		

	Describe the simple physical properties of a variety of everyday materials		
	Compare and group together a variety of everyday materials on the basis of their simple physical properties.		

Uses of everyday materials	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses		
	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.		

roperties and			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

changes of materials			
			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
			Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
			Demonstrate that dissolving, mixing and changes of state are reversible changes
			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.

Living things and their	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	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird

habitats	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	Describe the life process of reproduction in some plants and animals.
	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.	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
	Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.		Give reasons for classifying plants and animals based on specific characteristics.

Rocks		Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	
		Describe in simple terms how fossils are formed when things that have lived are trapped within rock	
	.	Recognise that soils are made from rocks and organic matter	

Light		**Recognise that they need light in order to see things and that dark is the absence of light**	**Recognise that light appears to travel in straight lines**
		Notice that light is reflected from surfaces	**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**
		Recognise that light from the sun can be dangerous and that there are ways to protect their eyes	**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**
		Recognise that shadows are formed when the light from a light source is blocked by an opaque object	**Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.**
		Find patterns in the way that the size of shadows change.	

Forces (and Magnets)		**Compare how things move on different surfaces**	**Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object**
		Notice that some forces need contact between two objects, but magnetic forces can act at a distance	**Identify the effects of air resistance, water resistance and friction, that act between moving surfaces**

		Observe how magnets attract or repel each other and attract some materials and not others	**Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.**
		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	
		Describe magnets as having two poles	
		Predict whether two magnets will attract or repel each other, depending on which poles are facing.	

States of Matter		**Compare and group materials together, according to whether they are solids, liquids or gases**	
		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)	
		Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	

Electricity		**Identify common appliances that run on electricity**	**Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit**
		Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers	**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**
		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	**Use recognised symbols when representing a simple circuit in a diagram**
		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.	

Earth and Space			**Describe the movement of the Earth, and other planets, relative to the Sun in the solar system**

			Describe the movement of the Moon relative to the Earth
			Describe the Sun, Earth and Moon as approximately spherical bodies
			Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

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.	

Evolution and inheritance			**Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago**
			Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
			Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.