



## Sacred Heart Catholic Primary School Long Term Topic Plan - Science

	Working Scientifically (through each unit)	Biology				Chemistry				Physics				
		Plants	Animals, including humans	Living things and habitats	Evolution and Inheritances	Rocks	Everyday Materials	Properties and changes of materials	States of matter	Light	Sound	Forces and Magnets	Seasonal Changes	Earth and Space
Year 1	X	X	X				X					X		
Year 2	X	X	X	X			X							
Year 3	X	X	X			X				X		X		
Year 4	X		X	X				X		X				X
Year 5	X		X	X				X			X		X	
Year 6	X		X	X	X					X				X

This document details the progression of skills and knowledge through the Science Curriculum at Sacred Heart – this is derived from the National Curriculum (2014).

The content is outlined by the end of unit expectations on a year group basis, except for the breakdown of the working scientifically skills which is detailed across key stages by Key Stage 1, Lower Key Stage 2 and Upper Key Stage 2 expectations.



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<b>Working Scientifically (through all science units)</b>		
<b>Year 1 and 2</b>	<b>Year 3 and 4</b>	<b>Year 5 and 6</b>
Asking simple <b>questions</b> and recognising that they can be answered in different ways	Asking relevant <b>questions</b> and using different types of scientific enquiries to answer them	Planning different types of scientific enquiries to answer <b>questions</b> , including recognising, and controlling variables, where necessary
	Using straightforward <b>scientific evidence</b> to answer questions or to support their findings	Identifying <b>scientific evidence</b> that has been used to support or refute ideas or arguments
<b>Observing</b> closely, using simple equipment	Asking systematic and careful <b>observations</b> and, where appropriate, taking accurate <b>measurements</b> using standard units, using a range of equipment including thermometers and data loggers	Taking <b>measurements</b> , using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where necessary
Performing simple <b>tests</b>	Setting up simple practical <b>enquires</b> , comparative and <b>fair tests</b>	
<b>Identifying</b> and <b>classifying</b>	<b>Identifying</b> differences, similarities or changes related to simple scientific ideas and processes	
<b>Using their observations</b> and ideas to suggest answers to questions	<b>Using results</b> to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions	<b>Using test results</b> to make predictions to set up further comparative and fair tests
Gathering and <b>recording</b> data to help in answering questions	<b>Recording</b> findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables	<b>Recording</b> data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs
	Gathering, recording, classifying, and presenting <b>data</b> in a variety of ways to help in answering questions	
	<b>Reporting</b> on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	<b>Reporting</b> and <b>presenting</b> 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
<i>Pupils should read and spell scientific <b>vocabulary</b> at a level consistent with their increasing word and spelling knowledge at key stage 1.</i>	<i>Pupils should read and spell scientific <b>vocabulary</b> correctly and with confidence, using their growing word reading and spelling knowledge.</i>	<i>Pupils should read, spell and pronounce scientific <b>vocabulary</b> correctly.</i>



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Term Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	<b>Seasonal Changes</b>					
	<b>Materials and their properties</b>	<b>Changing states of matter Melting or freezing</b>		<b>Observations of plants and animals</b>	<b>Exploring life cycles</b>	
Year 1	<b>Animals, including Humans</b> (Identify and name common animals, including ourselves/identify and name a variety of common animals that are carnivores, herbivores and omnivores/describe and compare the structure of a variety of common animals/identify, name, draw and label the basic parts of the human body and say which part of the body is associated with which sense)	<b>Seasonal Changes</b> (Observe changes across the four seasons/observe and describe weather associated with the seasons and how day length varies)	<b>Everyday materials</b> (Distinguish between an object and the material it is made of/identify and name everyday materials including wood, plastic, glass, metal, water and rock/describe the physical properties of everyday materials/comparer and group together everyday materials on basis of their simple physical properties)	<b>Plants</b> (Identify and name a variety of common wild and garden plants/identify and name the basic structure of common flowering plants including trees)		
Year 2	<b>Living things and their habitats</b> (Explore and compare the differences between things that are living, dead, and things that have never been alive/identify that most living things have habitats to which they are suited/describe how habitats provide for the basic needs of different types of animals and plants and they depend on one another/identify and name a variety of plants and animals in their habitats including micro-habitats/describe how humans obtain their food from plants and other animals, using a simple food chain/identity and name different sources of food)	<b>Everyday materials</b> (Identify and compare the suitability of materials. Including wood, metal, plastic, glass, brick, rock, paper, and cardboard for uses/find out how the shapes of solid objects made of some materials can be changed by squashing, bending, twisting, and stretching)	<b>Plants</b> (Observe and describe how seeds and bulbs grow into plants/find out and describe how plants need water, light, and a suitable temperature to grow and stay healthy)	<b>Animals including humans</b> (Notice that animals including humans have offspring which grow into adults/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)		



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Term Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Year 3</b>	<p><b>Light</b></p> <p>(Recognise that they need light to see things and that dark is the absence of light/notice that light is reflected from surfaces/recognise that light from the sun can be dangerous and that there are ways to protect our eyes/recognise that shadows are formed when light from a light source is blocked by a solid object/find pattern in the way that the size of shadows change)</p>	<p><b>Rocks</b></p> <p>(Compare and group different kinds of rocks based on their appearance and simple physical properties/describe in simple terms show fossils are formed when things that have lived are trapped in rocks/recognise that soils are made from rocks and organic matter, simple fossils and soils from rocks and organic matter)</p>	<p><b>Animals including Humans</b></p> <p>(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/identify that humans and some animals have skeletons and muscles for support, protection, and movement)</p>		<p><b>Plants</b></p> <p>(Identify and describe the functions of different parts of flowering plants/requirements for life and growth/how they vary from plant to plant/investigate how water is transported in plants and explore part flowers play in life cycle)</p>	<p><b>Forces and magnets</b></p> <p>(Compare how things move on different surfaces/notice some forces need contact between objects while magnetic forces can act at a distance/observe how magnets attract or repel and attract some materials and not others/compare and group materials based on if they attract to a magnet and identify some magnetic materials/describe magnets as having two poles/predict if two magnets will attract or repel based on which poles are facing)</p>



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Term Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 4	<p><b>States of matter</b> (Compare and groups materials together, according to whether they are solid, 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/identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature)</p>	<p><b>Electricity</b> (Identify common appliances that run on electricity/construct a simple series electrical circuit, identifying and naming its basic parts including cells, wires, bulbs, switches and buzzes/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/recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple circuit/recognise some common conductors and insulators, and associate materials with being good conductors)</p>	<p><b>Sound</b> (Identify how sounds are made, associating some of them with something vibrating/recognise that vibrations form 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 increases)</p>		<p><b>Living things and their habitats</b> (Recognise that living things can be groups in a variety of ways/explore and use classification keys to help group, identify and name a variety of living things in their local and wider communities/recognise that environments can change and that this can sometimes pose dangers to living things)</p>	<p><b>Animals including Humans</b> (Construct and interpret a variety of food chains, identifying producers, predators, and prey/describe the simple functions of the basic parts of the digestive system in humans/identify the different types of teeth in humans and their simple functions)</p>



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Term Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5	<p><b>Living Things and their habitats</b> (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)</p>	<p><b>Animals, including Humans</b> (7 stages of man and gestation /describe the changes as humans develop from birth to old age)</p>	<p><b>Earth and Space</b> (Describe movement of the Earth and other planets relative to the Sun in the solar system /describe 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)</p>	<p><b>Forces and magnets</b> (Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the object/identify the effects of air resistance, water resistance and friction that act between moving surfaces/recognise that some mechanisms, including levers, pulleys, and gears, allow a small force to have a greater effect)</p>	<p><b>Properties and Changes of Materials</b> (Compare and group materials based on properties, including hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets/know that some materials dissolve to make a solution and describe how to recover a substance from a solution/use knowledge of solids, liquids and gases to decide how mixtures may be separated, including filtering, sieving and evaporating/give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials/demonstrate that dissolving, mixing and changes of state are reversible/explain that some changes result in the formation of new materials, a change not normally reversible, including burning and acid on bicarbonate of soda)</p> <p><b>The Environment and Sustainability/Soils</b></p>	
Year 6	<p><b>Light</b> (Recognise light appears to travel in straight lines/use idea light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye /explain why we see things because light travels from light sources to our eyes or from light sources to objects then to our eyes/use idea light travels in straight lines to explain why shadows have the same shapes as the objects that cause them)</p>	<p><b>Electricity</b> (Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit/compare and give reasons for variations on how components function, including the brightness of bulbs and the on/off position of switches/use recognised symbols when representing a simple circuit in a diagram)</p>	<p><b>Animals including Humans</b> (Describe the ways in which nutrients and water are transported within animals including humans/identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood/recognise the impact of diet, exercise, drugs and lifestyle on the way their body's function)</p>	<p><b>Living things and their habitats</b> (Explain how living things are classified into broad groups according to common observable characteristics and based in similarities and differences, including microorganisms, plants and animals/ give reasons for classifying plants and animals based on specific characteristics)</p>	<p><b>Evolution and Inheritance</b> (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 adaption may lead to evolution)</p>	<p><b>Sex Education (RSE/PHSCE link)</b></p>