

St Helen's Catholic Primary School
Science Curriculum Map 2017 – 2018



Topics that lend themselves to supporting British Values

Democracy

The Rule of Law

Individual Liberty

Mutual Respect

Tolerance

Subject content - Key stage 1	Subject content - Lower Key stage 2	Subject content - Upper Key stage 2
<ul style="list-style-type: none"> During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: 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 their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions. 	<p>During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> 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, including thermometers and data loggers 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 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 <p>using straightforward scientific evidence to answer questions or to support their findings.</p>	<p>During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> 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 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 <p>identifying scientific evidence that has been used to support or refute ideas or arguments.</p>

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	<p>Types of Animals</p> <ul style="list-style-type: none"> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Identify and name a variety of common animals that are carnivores, herbivores and omnivores WS Observing closely, using simple equipment WS Identifying and classifying WS Gathering and recording data to help in answering questions. 	<p>Parts of Animals</p> <ul style="list-style-type: none"> Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) WS Observing closely, using simple equipment WS Performing simple tests WS Identifying and classifying Individual Liberty Mutual Respect Tolerance of Others 	<p>Identifying Materials</p> <ul style="list-style-type: none"> 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 WS Observing closely, using simple equipment WS Identifying and classifying WS Performing simple tests WS Asking simple questions and recognising that they can be answered in different ways WS Using their observations and ideas to suggest answers to questions WS Gathering and recording data to help in answering questions. The Rule of Law 	<p>Comparing Materials</p> <ul style="list-style-type: none"> 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. WS Observing closely, using simple equipment WS Identifying and classifying WS Asking simple questions and recognising that they can be answered in different ways WS Using their observations and ideas to suggest answers to questions WS Gathering and recording data to help in answering questions. WS Performing simple tests The Rule of Law 	<p>Plants</p> <ul style="list-style-type: none"> Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees. WS Observing closely, using simple equipment WS Identifying and classifying WS Gathering and recording data to help in answering questions. Individual Liberty Mutual Respect 	<p>Changing Seasons</p> <ul style="list-style-type: none"> Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies. WS Observing closely, using simple equipment WS Using their observations and ideas to suggest answers to questions WS Gathering and recording data to help in answering questions. WS Asking simple questions and recognising that they can be answered in different ways
Year 2	<p>Habitats</p> <ul style="list-style-type: none"> 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 Identify and name a variety of plants and animals in their habitats, including micro-habitats WS Identifying and classifying WS Gathering and recording data to help in answering questions. WS Observing closely, using simple equipment WS Asking simple questions and recognising that they can be answered in different ways 	<p>Use of Materials</p> <ul style="list-style-type: none"> Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses WS Identifying and classifying WS Asking simple questions and recognising that they can be answered in different ways WS Observing closely, using simple equipment WS Performing simple tests WS Using their observations and ideas to suggest answers to questions WS Gathering and recording data to help in answering questions. The Rule of Law 	<p>Changing Shape</p> <ul style="list-style-type: none"> Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. WS Identifying and classifying WS Asking simple questions and recognising that they can be answered in different ways WS Observing closely, using simple equipment WS Performing simple tests WS Gathering and recording data to help in answering questions. 	<p>Growing Plants</p> <ul style="list-style-type: none"> 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. WS Observing closely, using simple equipment WS Asking simple questions and recognising that they can be answered in different ways WS Performing simple tests WS Using their observations and ideas to suggest answers to questions Individual Liberty Mutual Respect 	<p>Living things</p> <ul style="list-style-type: none"> Explore and compare the differences between things that are living, dead, and things that have never been alive Notice that animals, including humans, have offspring which grow into adults WS Identifying and classifying WS Using their observations and ideas to suggest answers to questions WS Gathering and recording data to help in answering questions. WS Observing closely, using simple equipment WS Using their observations and ideas to suggest answers to questions Individual Liberty Mutual Respect Tolerance of Others 	<p>Feeding & Exercise</p> <ul style="list-style-type: none"> Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) 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. Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. WS Identifying and classifying WS Performing simple tests WS Gathering and recording data to help in answering questions.

Subject Leader: David Aanonson

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Year 3	<p><u>Magnets and Forces</u></p> <p>KCompare how things move on different surfaces KNotice that some forces need contact between two objects, but magnetic forces can act at a distance KDescribe magnets as having two poles KPredict whether two magnets will attract or repel each other, depending on which poles are facing. KObserve how magnets attract or repel each other and attract some materials and not others KCompare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials WSMaking systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers WSGathering, recording, classifying and presenting data in a variety of ways to help in answering questions WSSetting up simple practical enquiries, comparative and fair tests WSUsing results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions WSUsing straightforward scientific evidence to answer questions or to support their findings. WSIdentifying differences, similarities or changes related to simple scientific ideas and processes WSAsking relevant questions and using different types of scientific enquiries to answer them The Rule of Law</p>	<p><u>Parts of Plants</u></p> <p>KIdentify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers KInvestigate the way in which water is transported within plants KExplore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. WSAsking relevant questions and using different types of scientific enquiries to answer them WSMaking systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers WSGathering, recording, classifying and presenting data in a variety of ways to help in answering questions WSUsing straightforward scientific evidence to answer questions or to support their findings. The Rule of Law</p>	<p><u>Rocks & Soils</u></p> <p>KCompare and group together different kinds of rocks on the basis of their appearance and simple physical properties KDescribe in simple terms how fossils are formed when things that have lived are trapped within rock formation and soil are made from rocks and organic matter. WSMaking systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers WSSetting up simple practical enquiries, comparative and fair tests The Rule of Law</p>	<p><u>Movement and Feeding</u></p> <p>KIdentify 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 KIdentify that humans and some other animals have skeletons and muscles for support, protection and movement. WSGathering, recording, classifying and presenting data in a variety of ways to help in answering questions WSAsking relevant questions and using different types of scientific enquiries to answer them WSSetting up simple practical enquiries, comparative and fair tests WSMaking systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers WSUsing results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions WSUsing straightforward scientific evidence to answer questions or to support their findings. Individual Liberty Mutual Respect Tolerance of Others</p>	<p><u>What Plants Need</u></p> <p>KExplore 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 WSGathering, recording, classifying and presenting data in a variety of ways to help in answering questions WSRecording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables WSMaking systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers WSUsing results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions WSIdentifying differences, similarities or changes related to simple scientific ideas and processes WSSetting up simple practical enquiries, comparative and fair tests WSUsing straightforward scientific evidence to answer questions or to support their findings. WSReporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Individual Liberty Mutual Respect Tolerance of Others</p>	<p><u>Light & Shadows</u></p> <p>KRecognise that they need light in order to see things and that dark is the absence of light KNotice that light is reflected from surfaces KRecognise that shadows are formed when the light from a light source is blocked by a solid object KRecognise that light from the sun can be dangerous and that there are ways to protect their eyes KFind patterns in the way that the size of shadows change. WSSetting up simple practical enquiries, comparative and fair tests WSGathering, recording, classifying and presenting data in a variety of ways to help in answering questions WSReporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions WSMaking systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers WSUsing results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions The Rule of Law</p>
Year 4	<p><u>Sound</u></p> <p>KIdentify how sounds are made, associating some of them with something vibrating KRecognise that vibrations from sounds travel through a medium to the ear KFind patterns between the pitch of a sound and features of the object that produced it KFind patterns between the volume of a sound and the strength of the vibrations that produced it KRecognise that sounds get fainter as the distance from the sound source increases. WSGathering, recording, classifying and presenting data in a variety of ways to help in answering questions WSSetting up simple practical enquiries, comparative and fair tests WSIdentifying differences, similarities or changes related to simple scientific ideas and processes The Rule of Law</p>	<p><u>Grouping Living Things</u></p> <p>KRecognise that living things can be grouped in a variety of ways KExplore and use classification keys to help group, identify and name a variety of living things in their local and wider environment WSRecording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables WSMaking systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers WSGathering, recording, classifying and presenting data in a variety of ways to help in answering questions WSReporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions WSUsing straightforward scientific evidence to answer questions or to support their findings</p>	<p><u>Human Nutrition</u></p> <p>KDescribe the simple functions of the basic parts of the digestive system in humans KIdentify the different types of teeth in humans and their simple functions WSAsking relevant questions and using different types of scientific enquiries to answer them WSSetting up simple practical enquiries, comparative and fair tests WSReporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions WSUsing results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Individual Liberty Mutual Respect Tolerance of Others</p>	<p><u>Change of State</u></p> <p>KCompare and group materials together, according to whether they are solids, liquids or gases KObserve 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) KIdentify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. WSIdentifying differences, similarities or changes related to simple scientific ideas and processes WSSetting up simple practical enquiries, comparative and fair tests WSMaking systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers WSReporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions The Rule of Law</p>	<p><u>Electricity</u></p> <p>KIdentify common appliances that run on electricity KConstruct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers KIdentify 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 KRecognise some common conductors and insulators, and associate metals with being good conductors. KRecognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit WSRecording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables WSUsing results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions WSUsing straightforward scientific evidence to answer questions or to support their findings. WSAsking relevant questions and using different types of scientific enquiries to answer them WSIdentifying differences, similarities or changes related to simple scientific ideas and processes The Rule of Law</p>	<p><u>Dangers to Living Things</u></p> <p>KRecognise that environments can change and that this can sometimes pose dangers to living things. KConstruct and interpret a variety of food chains, identifying producers, predators and prey. WSAsking relevant questions and using different types of scientific enquiries to answer them WSGathering, recording, classifying and presenting data in a variety of ways to help in answering questions WSSetting up simple practical enquiries, comparative and fair tests WSUsing straightforward scientific evidence to answer questions or to support their findings Individual Liberty Mutual Respect Tolerance of Others</p>

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Year 5	Earth and Space K Describe the Sun, Earth, Moon as approximately spherical bodies K Describe the movement of the Earth, and other planets, relative to the Sun in the solar system K Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. K Describe the movement of the Moon relative to the Earth WS Identifying scientific evidence that has been used to support or refute ideas or arguments. WS Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs WS Using test results to make predictions to set up further comparative and fair tests The Rule of Law	Separating Mixtures K Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating K Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution WS Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs WS 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 WS Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate WS Using test results to make predictions to set up further comparative and fair tests WS Identifying scientific evidence that has been used to support or refute ideas or arguments. The Rule of Law	Forces K Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object K Identify the effects of air resistance, water resistance and friction, that act between moving surfaces K Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. WS Identifying scientific evidence that has been used to support or refute ideas or arguments. WS Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate WS 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 WS Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS Using test results to make predictions to set up further comparative and fair tests WS Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graph The Rule of Law	Materials K 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 K Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic WS Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs WS 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 WS Identifying scientific evidence that has been used to support or refute ideas or arguments. WS Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate WS Using test results to make predictions to set up further comparative and fair tests Individual Liberty Mutual Respect Tolerance of Others	Types of Change K Demonstrate that dissolving, mixing and changes of state are reversible changes K 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. WS Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate WS Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs WS 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 WS Identifying scientific evidence that has been used to support or refute ideas or arguments. WS Using test results to make predictions to set up further comparative and fair tests WS Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Individual Liberty Mutual Respect Tolerance of Others	Life Cycles K Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird K Describe the changes as humans develop to old age. K Describe the life process of reproduction in some plants and animals. WS Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate WS Using test results to make predictions to set up further comparative and fair tests WS 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 WS Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs WS Identifying scientific evidence that has been used to support or refute ideas or arguments. Individual Liberty Mutual Respect	
Year 6	Classifying Living Things K 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 K Give reasons for classifying plants and animals based on specific characteristics. WS Identifying scientific evidence that has been used to support or refute ideas or arguments. WS Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate WS Recording data & results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs WS 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 WS Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS Using test results to make predictions to set up further comparative and fair tests The Rule of Law	Light and Sight K 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 K Recognise that light appears to travel in straight lines K 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 K Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. WS Recording data results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs WS Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Individual Liberty Mutual Respect Tolerance of Others	Evolution and Inheritance (Visit NHM) K Recognise that living things have changed over time & that fossils provide information about living things that inhabited Earth millions of years ago K Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents K Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. WS Identifying scientific evidence that has been used to support or refute ideas or arguments. WS Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS 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	Our Bodies K Identify & name the main parts of the human circulatory system, & describe the functions of the heart, blood vessels and blood K Describe the ways in which nutrients and water are transported within animals, including humans. K Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function WS Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate WS Reporting & presenting findings from enquiries; conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations The Rule of Law	Changing Circuits K Use recognised symbols when representing a simple circuit in a diagram. K Associate the brightness of a lamp/volume of a buzzer with the number & voltage of cells in the circuit K 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 WS Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs WS Identifying scientific evidence that has been used to support or refute ideas or arguments. WS Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS Using test results to make predictions to set up further comparative and fair tests WS 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 WS Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate		

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