Science

Curriculum Progression Document

Subject Leader: Miss Lyon

Academic Year: 2025-2026

Our School Mission

We Believe, We Succeed and We Soar

Christ is at the centre of St. Mary's as we strive to nurture and care for our community and encourage them to Believe, Succeed and Soar. Through God's love, we support our pupils in recognising their God given gifts, strengthening their work as missionary disciples.

'Do little things with great love' St Therese of Lisieux

The mission of St Mary's Catholic Voluntary Academy is that of Jesus Christ; to build a teaching and learning community where we show due regard for the development and understanding of the uniqueness and dignity of each person. At St Mary's, each child is valued as a unique individual, a child of God, made in the image of the Father, Son and Holy Spirit.

Our Gospel Values

With God's love we show:

Love

'My command is this: Love one another as I have loved you.' John 15:12

We recognise God's unconditional love to be our source of love. A Christ-like love respects the talent of each person in our school.

Respect

'In everything, then do to others as you would have them do to you.' Matthew 7:12

We believe that, as children of God, we have a duty not only to respect our friends and teachers but also to show respect to our environment as we are stewards of the earth.

Honesty

'Dear children, let us not love with words or speech but with actions and in truth.' 1 John 3:18

We show honesty in all we say and do, in the pursuit of justice and fairness.

Forgiveness

'Do not judge, and you will not be judged. Do not condemn, and you will not be condemned. Forgive, and you will be forgiven.' Luke 6:37

We believe that mercy will be shown by the way we forgive others, finding God in all things.

Generosity

'It is more blessed to give than to receive.' Acts 20:35

Just as Jesus washed the feet of his disciples, we have a role to serve our neighbours and the wider community. Through fundraising and prayer, we will strive to help the people in our world, our common home.

Patience

'Jesus replied, 'You do not realise now what I am doing, but later you will understand.' John 13:7

We remember to be patient and trust in God as we know he has a much greater plan for us. He allows us to be tested so that we learn to walk in his ways and trust in him.

Science Progression of Knowledge and Skills

Working Scientifically

'Working scientifically' specifies the understanding of the nature, processes and methods of science. It is not taught as a separate strand. 'Working scientifically' is embedded within the content of Biology, Chemistry and Physics, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. Pupils seek answers to questions through collecting, analysing and presenting data.

Types of scientific enquiry include:

Observing over time	Pattern seeking	Identifying	Classifying and grouping	Comparative and fair testing (controlled investigations)	Researching using secondary sources

EYFS	Pupils will be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: - Ask simple questions - Observe closely - Identifying - Gathering data	Pupils will explore the world around them and raise their own questions. They will use simple measurements and equipment to gather data and talk about what they have found out. With help. They will record and communicate their findings.
KS1	Pupils will 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.	Pupils will explore the world around them and raise their own questions. They will experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions. They will use simple features to compare objects, materials and living things and, with help, decide how to sort and group them, observe changes over time, and, with guidance, they will begin to notice patterns and relationships. They will ask people questions and use simple secondary sources to find answers. They will use simple measurements and equipment (for example, hand lenses, egg timers) to gather data, carry out simple tests, record simple data, and talk about what they have found out and how they found it out. With help, they will record and communicate their findings in a range of ways and begin to use simple scientific language.
LKS2	Pupils will be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: - 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	Pupils will be given a range of scientific experiences to enable them to raise their own questions about the world around them. They will start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys. They will begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. They will help to make decisions about what observations to

	- 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 - using straightforward scientific evidence to answer questions or to support their findings	make, how long to make them for and the type of simple equipment that might be used. They will learn how to use new equipment, such as data loggers, appropriately. They will collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data. With help, pupils will look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, they will identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done. They should also recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations. Pupils will use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.
UKS2	Pupils will be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: - 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 - identifying scientific evidence that has been used to support or refute ideas or arguments	Pupils will use their science experiences to: explore ideas and raise different kinds of questions; select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. They will use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. They will make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately. They will decide how to record data from a choice of familiar approaches; look for different causal relationships in their data and identify evidence that refutes or supports their ideas. They will use their results to identify when further tests and observations might be needed; recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact. They will use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and they will talk about how scientific ideas have developed over time.

Biology	
Plants	
EYFS	Children will learn: - Some foods that are grown and come from plants - The basic needs to care for plants - Some common varieties of plants - The difference between a non-flowering and flowering plant
Year 1	Children will learn: - To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees - To identify and describe the basic structure of a variety of common flowering plants, including trees
Year 2	Children will learn: - To observe and describe how seeds and bulbs grow into mature plants - To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.
Year 3	Children will learn: - To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers - To 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 - To investigate the way in which water is transported within plants - To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.
Year 4	Children will learn: - To recognise that living things can be grouped in a variety of ways - To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment - To recognise that environments can change and that this can sometimes pose dangers to living things.
Animals Including Humans	
EYFS	Children will know: - The order of the human lifecycle from birth to old age - The various stages of the life cycle of a caterpillar/butterfly - The five senses - How to keep themselves healthy - How germs can spread - How to sort animals into categories – sea creatures, farm animals, wild animals · - The names of some Minibeasts and recognise their natural habitats
Year 1	Children will learn: - To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals - To identify and name a variety of common animals that are carnivores, herbivores and omnivores - To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) - To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.
Year 2	Children will learn: - To notice that animals, including humans, have offspring which grow into adults - To find out about and describe the basic needs of animals, including humans, for survival (water, food and air)

	- To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
Year 3	Children will learn: - To 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 - To identify that humans and some other animals have skeletons and muscles for support, protection and movement.
Year 4	Children will learn: - To describe the simple functions of the basic parts of the digestive system in humans - To identify the different types of teeth in humans and their simple functions - To construct and interpret a variety of food chains, identifying producers, predators and prey
Year 5	Children will learn: - To describe the changes as humans develop to old age
Year 6	Children will learn: - To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood - To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function - To describe the ways in which nutrients and water are transported within animals, including humans.
Living Things and their Habitats	
EYFS	Children will learn: - To identify that most living things live in habitats - To recognise some habitats e.g. under the sea - How to respect and care for different habitats - Some items found in a rock pool
Year 2	Children will learn: - To explore and compare the differences between things that are living, dead, and things that have never been alive - To 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 - To identify and name a variety of plants and animals in their habitats, including microhabitats - To 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.
Year 5	Children will learn: - To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird - To describe the life process of reproduction in some plants and animals.
Year 6	Children will learn: - To describe how living things are classified into broad groups according to common - To observable characteristics and based on similarities and differences, including microorganisms, plants and animals - To give reasons for classifying plants and animals based on specific characteristics.
Evolution and Inheritance	
Year 6	Children will learn: - To recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago - To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents - To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

Chemistry	
Materials Everyday Materials (Y1/2) / Rocks (Y3) / States of Matter (Y4) / Properties and Changes of Materials (Y5)	
EYFS	Children will learn: - That things float or sink - To identify and name some everyday materials - That materials can be the same and some can be different
Year 1 Everyday Materials	Children will learn: - To distinguish between an object and the material from which it is made - To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock - To describe the simple physical properties of a variety of everyday materials - To compare and group together a variety of everyday materials on the basis of their simple physical properties.
Year 2 Everyday Materials	Children will learn: - To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
Year 3 Rocks	Children will learn: - To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties - To describe in simple terms how fossils are formed when things that have lived are trapped within rock - To recognise that soils are made from rocks and organic matter.
Year 4 States of Matter	Children will learn: - To compare and group materials together, according to whether they are solids, liquids or gases - 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) - To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature
Year 5 Properties and Changes of Materials	Children will learn: - To 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 - To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution - To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating - To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic - To demonstrate that dissolving, mixing and changes of state are reversible changes - 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

Physics	
Seasonal Changes (KS1) / Earth and Space (KS2)	
EYFS	Children will learn: - The names of the different seasons - When the different seasons appear in throughout the year - About weather associated with each season - How leaves change throughout the different seasons
Year 1	Children will learn: - To observe changes across the four seasons - To observe and describe weather associated with the seasons and how day length varies
Year 5	Children will learn: - To describe the movement of the Earth, and other planets, relative to the Sun in the solar system - To describe the movement of the Moon relative to the Earth - To describe the Sun, Earth and Moon as approximately spherical bodies - To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky
Light	
Year 3	Children will learn: - To recognise that they need light in order to see things and that dark is the absence of light - To notice that light is reflected from surfaces - To recognise that light from the sun can be dangerous and that there are ways to protect their eyes - To recognise that shadows are formed when the light from a light source is blocked by an opaque object - To find patterns in the way that the size of shadows change
Year 6	Children will learn: - To recognise that light appears to travel in straight lines - To 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 - To 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 - To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Forces **Forces and Magnets (Y3) / Forces (Y5)**	
Year 3	Children will learn: - To compare how things move on different surfaces - To notice that some forces need contact between two objects, but magnetic forces can act at a distance - To observe how magnets attract or repel each other and attract some materials and not others - To 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 - To describe magnets as having two poles - To predict whether two magnets will attract or repel each other, depending on which poles are facing.
Year 5	Children will learn: - To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object - To identify the effects of air resistance, water resistance and friction, that act between moving surfaces

	- To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
Sound	
Year 4	Children will learn: - To identify how sounds are made, associating some of them with something vibrating - To recognise that vibrations from sounds travel through a medium to the ear - 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 the vibrations that produced it - To recognise that sounds get fainter as the distance from the sound source increases.
Electricity	
Year 4	Children will learn: - To identify common appliances that run on electricity - To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers - To 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 - To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit - To recognise some common conductors and insulators, and associate metals with being good conductors.
Year 6	Children will learn: - To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit - To 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 - To use recognised symbols when representing a simple circuit in a diagram.