

Science

Curriculum Intent 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.

St Mary's Catholic Voluntary Academy, Grantham

Scripture Link:

(Genesis 1:27)

‘So God created humanity in his own image, in the image of God he created them; male and female he created them.’

At St. Mary's we ensure that science stimulates and excites pupils' curiosity about phenomena and events in the world around them. It also satisfies this curiosity with knowledge and progression of skills. Because science links direct practical experience with ideas, it can engage learners at many levels. Scientific method is about developing and evaluating explanations through experimental evidence and modelling. This is a spur to critical and creative thought.

Through science, pupils understand how major scientific ideas contribute to technological change – impacting on industry, business and medicine and improving quality of life. Pupils recognise the cultural significance of science and trace its world-wide development. They learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world.

The intent which we have based our curriculum upon is for our pupils to:

- Retain and develop their natural curiosity of the world around them;
- Develop positive attitudes towards science and the impact of science in the world today;
- Build on the progression of scientific knowledge and understanding relating to the programmes of study outlined in the National Curriculum;
- Develop their skills of scientific investigation including generating questions, planning fair tests, careful observation and interpreting and evaluating evidence;
- Effectively communicate scientific information through a variety of methods;
- Develop their understanding of how to work safely.

EYFS

<u>Advent 1</u> Growth and Change (Humans)	<u>Advent 2</u> Light and Dark	<u>Lent 1</u> Floating and Sinking	<u>Lent 2</u> Sounds and Senses	<u>Pentecost 1</u> Growth and Change (Animals)	<u>Pentecost 2</u> Growing Plants
<p>Children will: Know the lifecycle of a human. Know how to talk about how they have changed since they were a baby. Know how to talk about similarities/differences/pattern and change in relation to people. Know how to talk about changes in Autumn</p>	<p>Children will: Know how to talk about changes they can see in Winter. Know how make different shadows and colours with torches. Know and talk about why some animals hibernate or migrate in Winter. Know that they need to care for the natural environment and all living things.</p>	<p>Children will: Know what Floating and Sinking are and to sort objects accordingly. Know some properties of everyday materials and talk about their similarities and differences.</p>	<p>Children will: Know how to talk about the changes I see in Spring. Know how to talk about a famous scientist – linked to Sound and Technology, including their name. Know what the 5 senses are.</p>	<p>Children will: Know how to talk about similarities and differences in relation to some farm animals. Know about the life cycles of butterflies and chickens Know what animals needs to grow and stay healthy and how they can help with this. Know that they need to care for the natural environment and all living things. Know some features of our school environment and how they might differ from another environment.</p>	<p>Children will: Know the names of the basic parts of a plant (leaf, stem, petal, flower) Know what a plant needs to grow and how they can help with this Know some similarities and differences between plants. Know how to talk about the changes they see in summer.</p>

Year 1

<u>Advent 1</u> Seasonal Changes	<u>Advent 2</u> Everyday Materials	<u>Lent 1</u> Identifying Animals	<u>Lent 2</u> Identifying Plants	<u>Pentecost 1</u>	<u>Pentecost 2</u> My Body
<p>To know about different seasons and how to describe them. To know how the seasons are different. To know how animals are affected by the seasons. To know how animals are affected by the seasons. To know how the day length is affected by the seasons. To investigate the weather during the seasons.</p>	<p>To be able to identify a variety of common materials. To be able to distinguish between an object and the material from which it is made. To be able to describe materials according to their properties. To be able to describe why some materials suit certain objects better than others.</p>	<p>To be able to identify and name a variety of common animals. To be able to identify and name a variety of common UK mammals. To be able to identify and compare a variety of common UK birds and reptiles To be able to identify and compare a variety of common UK fish and amphibians.</p>	<p>To find out what a plant is. To identify and describe garden plants. To identify and describe wild plants. To identify and describe a range of trees. To identify the different parts of a plant. To make observations of growing plants.</p>	<p>WOW Area</p>	<p>To be able to identify, name and label body parts. To explore what parts of our bodies we use for different activities. To find out about the five senses, in particular the sense of sight. To explore the sense of touch. To explore the sense of smell.</p>

	To carry out an experiment to find out which materials are waterproof.	To be able to identify and sort carnivores, herbivores and omnivores. To be able to take care of animals. To collect data about animals and answer questions.			To explore the sense of taste. To explore the sense of sound.
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Year 2					
<u>Advent 1</u>	<u>Advent 2</u> Exploring Everyday Materials	<u>Lent 1</u> Growth and Survival	<u>Lent 2</u> Super Scientists	<u>Pentecost 1</u> Growing Plants	<u>Pentecost 2</u> Living in Habitats
WoW Area	To be able to identify a variety of materials and sort them according to a variety of criteria. To be able to identify natural and man-made materials. To identify that some materials can change shape by squashing, bending, stretching and twisting, and others can't. To identify the suitability of metal and plastic for a variety of purposes To identify different products that can be made from wood and their features and purposes. To identify different materials that are used for the same product. To identify material inventions and discoveries.	To find out about the offspring of a variety of different animals. To find out about the different ways in which animals reproduce. To explore how humans grow as they get older. To find out what animals, including humans, need to survive. To explore the environment as a factor of survival for animals, including humans. To find out how to eat a healthy, balanced diet. To find out why exercise is important to keep our bodies healthy	To investigate the effect gravity has on everyday objects. To investigate what happens to light when it passes through different transparent objects. To investigate the wind. To investigate whether sound can pass through materials. To investigate our senses and reflexes. To investigate how germs are transferred by touching things. To investigate electrical circuits to make a light bulb light up	To understand that different seeds grow into different plants and to describe them. To understand that plants can be grown from bulbs. To be able to explain why and how seeds are dispersed. To plan, carry out and evaluate an investigation into the conditions that affect germination. To observe and describe how a plant changes as it matures	To be able to identify things that are living, things that are dead and things that have never been alive. To understand that living things need to live in suitable habitats. To explore the plants and animals that live in seaside habitats. To be able to explore plants and animals in an unfamiliar habitat. To be able to explore and describe a micro-habitat. To explore food chains in a habitat.

Year 3					
<u>Advent 1</u>	<u>Advent 2</u>	<u>Lent 1</u>	<u>Lent 2</u>	<u>Pentecost 1</u>	<u>Pentecost 2</u>

Light and Shadow	Forces and Magnets	Health and Movement		How Plants Grow	Rocks, Fossils and Soils
<p>To explore what light is and where it comes from.</p> <p>To learn about how light from The Sun can be dangerous and how we can protect ourselves.</p> <p>To investigate what shadows are and why they are formed.</p> <p>To investigate how shadows behave.</p> <p>To explore how light is reflected from surfaces.</p>	<p>To explore what forces are and notice that some forces need contact between two objects.</p> <p>To compare how things move on different surfaces.</p> <p>To explore how magnetic forces work.</p> <p>To be able to identify magnetic materials.</p> <p>To investigate uses for magnets.</p>	<p>To identify that humans get the nutrition they need from what they eat.</p> <p>To identify that a balanced diet is needed in order to stay healthy.</p> <p>To investigate which foods different animals eat.</p> <p>To carry out an investigation to find out what pets eat.</p> <p>To explore human and animal skeletons.</p> <p>To find out about how the skeleton supports and protects the body and to investigate how invertebrates are supported.</p> <p>To find out what muscles are and how skeletal muscles help us to move.</p>	WoW Area	<p>To identify and describe the functions of the roots of flowering plants.</p> <p>To investigate the way in which water is transported within plants.</p> <p>To identify and describe the functions of leaves in flowering plants.</p> <p>To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p> <p>To explore some of the ways in which flowering plants disperse their seeds.</p> <p>To understand the structure of seeds and their importance as a food source.</p>	<p>To be able to identify naturally occurring rocks and explore their uses.</p> <p>To be able to group rocks according to their characteristics.</p> <p>To be able to plan, carry out and evaluate experiments to compare rocks.</p> <p>To identify rocks that are used for particular purposes.</p> <p>To explore soil and how it is formed.</p> <p>To explore what fossils are and how they are formed.</p> <p>To be able to identify fossilised remains.</p>

Year 4					
Advent 1 Changing Sound	Advent 2 Circuits and Conductors	Lent 1	Lent 2 States of Matter	Pentecost 1 Eating and Digestion	Pentecost 2 Living in Environments
<p>To know that sounds are made when objects and materials vibrate.</p> <p>To investigate whether sounds can travel through different materials.</p> <p>To explore the relationship between distance and volume.</p> <p>To find out which materials are effective in preventing vibrations from sound sources reaching the ear.</p> <p>To investigate how sounds</p>	<p>To identify common appliances that run on electricity</p> <p>To understand how to keep safe around electrical appliances.</p> <p>To construct simple circuits.</p> <p>To recognise common conductors and insulators.</p> <p>To make a simple device which includes a circuit.</p>	WoW Area	<p>To compare and group materials together according to whether they are solids or liquids.</p> <p>To identify and explore the properties of gases.</p> <p>To observe that materials change state when they are heated or cooled.</p> <p>To research the temperature in degrees Celsius (°C) at which materials change state</p>	<p>To be able to identify and classify carnivores, herbivores and omnivores.</p> <p>To be able to construct and interpret a variety of food chains.</p> <p>To identify the different types of teeth in humans and identify their functions.</p> <p>To explore different ways of keeping teeth healthy.</p> <p>To investigate how the digestive system works.</p>	<p>To be able to identify a variety of habitats and explore why organisms live in different habitats.</p> <p>To be able to group organisms according to their characteristics.</p> <p>To be able to classify animals into specific groups according to their characteristics.</p>

can be different pitches and volumes.			To understand the process of evaporation.	To be able to describe the functions of the basic parts of the digestive system.	To be able to use a classification key to identify animals. To be able to identify and classify a variety of British plants. To explore the human impact on habitats and environments.
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Year 5

<u>Advent 1</u> Forces in Action	<u>Advent 2</u>	<u>Lent 1</u> Life Cycles	<u>Lent 2</u> Earth and Space	<u>Pentecost 1</u> Properties and Changes of Materials	<u>Pentecost 2</u> Changes and Reproduction
<p>To know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>To identify the effects of friction acting between moving surfaces.</p> <p>To identify and explain the effects of air resistance.</p> <p>To identify and explain the effects of water resistance.</p> <p>To recognise that levers and pulleys allow a smaller force to have a greater effect.</p> <p>To recognise that gears allow a smaller force to have a greater effect.</p>	WoW Area	<p>To describe the process of sexual reproduction in flowering plants.</p> <p>To describe the process of asexual reproduction in plants.</p> <p>To describe the process of sexual reproduction in animals.</p> <p>To observe and compare the life cycles of animals in our local environment with other animals around the world.</p> <p>To compare how different animals reproduce and grow.</p> <p>To find out about the work of naturalists.</p>	<p>To describe the movements of the Sun, Earth and Moon.</p> <p>To explore how the rotation of Earth creates day and night.</p> <p>To learn about how Earth's tilt creates seasons.</p> <p>To learn about the phases of the Moon.</p> <p>To discover how theories about our solar system have changed.</p> <p>To investigate the planets in the solar system.</p>	<p>To know that some materials will dissolve in liquid to form a solution</p> <p>To use knowledge of solids, liquids and gases to decide how mixtures and solutions might be separated</p> <p>Explain that some changes form new materials, and that these changes are not usually reversible</p> <p>To identify when a change caused by heating or cooling is reversible or irreversible</p> <p>To investigate the materials needed for something to burn and the new materials formed by burning</p> <p>To compare and group together everyday materials on the basis of their properties</p> <p>To give reasons for the particular uses of everyday</p>	<p>To recognise the stages of growth and development in humans.</p> <p>To know the stages in the gestation period of humans and compare them to other animals.</p> <p>To recognise the stages of development during childhood and understand the needs of children at those stages.</p> <p>To understand the initial changes inside and outside of the body during puberty</p> <p>To know the changes that occur during puberty and how they differ for boys and girls.</p> <p>To understand how the body changes during adulthood and old age.</p>

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Year 6

<u>Advent 1</u> Seeing Light	<u>Advent 2</u> Changing Circuits	<u>Lent 1</u> Classifying Organisms	<u>Lent 2</u> Evolution and Inheritance	<u>Pentecost 1</u> Healthy Bodies	<u>Pentecost 2</u>
<p>To know how shadows are formed.</p> <p>To investigate how we can change shadows.</p> <p>To understand how our eyes allow us to see.</p> <p>To understand how we see objects.</p> <p>To investigate reflection.</p>	<p>To recap what electricity is and investigate static electricity</p> <p>To recap our knowledge and understanding of circuits.</p> <p>To be able to recognise and use conventional symbols for circuits.</p> <p>To investigate ways in which the brightness of a bulb or speed of a motor is changed.</p> <p>To be able to plan, carry out and evaluate an experiment to see how changing the wire in a circuit affects the brightness of a bulb.</p> <p>To create a simple device using a circuit.</p>	<p>To recap ways of grouping organisms according to their characteristics.</p> <p>To explore ways of distinguishing between organisms that have similar characteristics.</p> <p>To be able to classify plants according to their characteristics.</p> <p>To find out about Carl Linnaeus and his classification system.</p> <p>To explore what microorganisms are and how they can be grouped.</p> <p>To be able to identify and classify organisms in the local area.</p>	<p>To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>To identify how animals and plants are adapted to suit their environment in different ways.</p> <p>To understand that adaptation of plants and animals to suit their environment may lead to evolution.</p> <p>Evolution and Inheritance: Darwin</p> <p>To recognise that living things have changed over time and that a number of factors can affect a species' evolution.</p> <p>To understand how humans have evolved over time, and how human behaviour can affect change in species over time.</p>	<p>To find out how scientific ideas about food and diet were tested in the past and how this has contributed to our knowledge of a balanced diet.</p> <p>To investigate some different food groups and find out why a variety of foods is important for a healthy diet.</p> <p>To find out how nutrients and water are transported in the human body.</p> <p>To investigate what happens to the heart when we exercise and why.</p> <p>To investigate how muscles move the skeleton and how muscle activity requires increased blood flow.</p> <p>To investigate the effects of tobacco, alcohol and other drugs.</p> <p>To evaluate what we can do to keep our bodies healthy.</p>	<p>WoW Area</p>