



St Monica's Catholic Primary School

Philosophy

Every child is a unique gift from God, with his or her own unique gifts.

Our Catholic school, inspired by the teaching of Jesus Christ, will always endeavour to meet the needs of every child within our school.

At St. Monica's, we strive to ensure that all children and staff are offered the opportunity to develop to their full potential in individual, educational, moral, intellectual and spiritual needs.

Our Mission Statement is "Let Trust, Respect and Love live here."

What we teach and what your children learn in Science

Please see below a summary of our plans (organised by Year Group and Term) for teaching and learning in Science in our school.

If you want further information on the curriculum, including how it is adapted for children within classes who are at different stages of learning including your child, please contact your child's teacher or email the school on stmonicas@stmonicas.co.uk



Our Intent, Implementation and Impact Statement for Science

Intent:

Through the delivery of an ambitious curriculum, children will have a good understanding of the World around them and develop skills of thinking scientifically. Scientific investigation skills are set out in each topic and children can build on previous knowledge. Children will have a curiosity and interest in Science which is nurtured and fostered through well-planned lessons. We aim for all children to develop scientific knowledge and conceptual understanding; develop understanding of scientific method through investigations and understand many uses of Science in the World around them. The Science curriculum promotes respect for the living and the non-living. Children will acquire the knowledge, skills and an understanding of the key vocabulary within each topic and will be able to apply the skills they have learnt across topics and year groups. Children will be able to ask questions, predict, plan and carry out investigations using equipment, record results, draw conclusions, compare conclusions to predictions and then evaluate their processes.

Implementation:

Science is taught in topics by the class teacher. Our medium-term planning and curriculum overview documents provide topic information, topic knowledge, topic skills and key vocabulary. This planning is adapted beyond the core knowledge listed below to provide for the learning needs of all learners and to ensure all learners, including SEND, Pupil Premium and high attainers, are challenged, including through cross curricular links.

Science units build on the knowledge and skill development of the previous years. As the children's knowledge and skills develop, they become more confident in asking questions and carrying out investigations and their conclusions are based on real results and evidence. Working scientifically skills are part of lessons and class displays which ensure these skills are developed throughout the curriculum along with new subject knowledge and key vocabulary. Teachers model the use of scientific equipment to develop children's skills. Extra-curricular opportunities, including trips, are used e.g. the Y5 trip to the National Space Centre. Relationships are maintained with local STEM partners, including our linked secondary school, St Paul's to develop teacher practice and opportunities for children.



Teachers conduct assessment for learning during lesson time and adapt their teaching as necessary. Work is adapted to meet the needs of all children in the classroom to ensure accessibility. Relevant scientific vocabulary as planned is used by all teachers and this is discussed with and explained to children who are encouraged to use it independently.

At the end of a unit, post-learning assessments provide an opportunity for pupils to demonstrate what they have learnt across their given topic and reflect upon and consolidate their learning. These also provide formative assessment for future learning in addition to the informal assessment which has taken place throughout the topics to close gaps, including with regard to previous learning.

Impact:

We formally record tracked progress and attainment to ensure children are working towards their end of year expectations based on good or better progress. Knowledge organisers and Flashbacks are used to ensure children know more and remember more. Impact of the curriculum is also reviewed through book scrutinies and pupil voice. By the end of each academic year, most children have progressed to achieve the end of year expectations. Children have scientific skills and knowledge to help them understand the World. Children have the language to be able to justify, reason and explain their thoughts. They have a very positive view of Science and can take the good scientific knowledge and skills developed at St Monica's through the transition into secondary school.



S c i e n c e L		R	Year 1/ 2 Cycle A (Sept 2027)	Year 1/ 2 Cycle B (Sept 2026)	Year 3	Year 4	Year 5	Year 6
	Advent 1	<u>Some of the KAPOW activities linked to these topics will be included in the children's continuous provision rather than being taught as stand-alone lessons.</u> Animal Adventures (5 lessons) Investigating the habitats of animals by exploring where different creatures live and how their environments meet their needs. The children observe and compare animals and their habitats, sort living things based on similarities and differences and develop their understanding of the natural world through outdoor learning, songs and creative activities.	Plants- Introductions (6 lessons) Venturing outside, the children identify and name common wild and garden plants (including deciduous and evergreen trees), observe plant parts with magnifying glasses and name them, sort leaves by appearance, investigate whether beans need water to grow and identify edible plant parts.	Animals, including humans: Sensitive bodies (6 lessons) Identifying and naming body parts, the children conduct practical activities with the senses to spot patterns and answer questions.	Energy: Light and shadows (6 lessons) Exploring how light enables us to see and identifying different light sources. Pupils examine reflection and shadow formation, investigate factors that affect shadows and apply their learning creatively through shadow puppetry.	Animals, including humans: Digestion and food (6 lessons) Exploring the digestive system by using models to understand the function of key organs and how food is processed in the body. Pupils investigate different types of human teeth and factors affecting dental health and compare human and animal dentition.	Forces and space: unbalanced forces (6 lessons) Exploring gravity, air resistance and water resistance and the effects of balanced and unbalanced forces. Pupils demonstrate key concepts through practical activities, plan and carry out investigations and test ideas using models.	Living things: Evolution and inheritance (6 lessons) Exploring inheritance and evolution by investigating how characteristics can be inherited or influenced by the environment. Pupils learn how Darwin and Wallace used observations to develop theories of evolution, model natural selection using Darwin's finches and examine how fossil evidence supports the idea that species change over time.
	Advent 2	Changing seasons (6 lessons) A unit to be taught across the year: observing seasonal changes throughout the year by exploring how the weather affects plants, animals and daily life. The children create a weather chart, investigate how animals prepare for winter, discover	Forces and Space (6 lessons) Reflecting on their experiences, the children learn about the four seasons and their associated weather, explore how seasonal changes affect trees, daylight hours and clothing and plan and present weather reports, considering the knowledge needed for the role.	Materials: Everyday materials (6 lessons) Recognising the suitability of materials for specific purposes, the children explore how actions like stretching and bending affect solid objects, compare material suitability through tests and record data.	Forces and space: forces and magnets (6 lessons) Investigating how vehicles move across different surfaces and how friction affects motion. Pupils develop their scientific enquiry skills by planning investigations, writing methods and recording data, while learning about contact and non-contact forces and the properties and uses of magnets.	Energy: Sound and vibrations (6 lessons) Discovering how sound is made and travels by exploring the relationship between vibrations and hearing. Pupils investigate how sound moves through different materials, learn how animals such as dolphins and whales communicate, explore ways to protect hearing and experiment with pitch and volume by creating their own musical instruments.	Materials: Properties and changes (6 lessons) Examining the properties of materials by investigating hardness, transparency and conductivity and considering how these characteristics affect their uses. Pupils explore reversible changes, such as dissolving and changes of state and compare these with irreversible changes, including rusting, burning and chemical reactions.	Energy: Light and reflection (6 lessons) Examining how light behaves by investigating reflection, shadows and how light travels in straight lines. Pupils explore how the eyes detect light, examine the laws of reflection, investigate factors that affect shadow size and apply their knowledge by exploring practical uses of mirrors in everyday life.



	Lent 1	<i>life cycles in spring and experiment with sand and water in summer through a range of practical activities.</i> I am a Scientist (5 lessons) <i>Examining changes and processes in the natural world by asking questions and carrying out simple enquiries. The children explore how pushes and pulls affect movement, compare objects that float and sink and observe how materials change in different conditions through practical investigations with ice and chocolate.</i>	Living Things: habitats (6 lessons) <i>Considering the life processes shared by all living things, the children classify objects as alive, once alive or never alive, explore a range of habitats by naming plants and animals found there, learn how different living things depend on each other for food and shelter and create food chains to show the sequence in which living things eat each other.</i>	Animals, including humans: comparing animals (6 lessons) <i>Learning about animals, the children compare and group them by similarities and differences in characteristics, physical features and diets.</i>	Plants: Plant reproduction (6 lessons) <i>Understanding how plants grow and reproduce by exploring the functions of different plant parts and their role in development. Pupils investigate factors that affect plant growth, discover how water is transported through plants and compare different seeds and methods of seed dispersal through practical enquiry and modelling activities.</i>	Energy: Electricity and circuits (6 lessons) <i>Discovering how electricity is used in everyday life by identifying electrical appliances and learning how to work safely with electricity. Pupils build and test simple circuits, investigate conductors and insulators and explore how changes to a circuit affect bulb brightness.</i>	Forces and space: Earth and space (6 lessons) <i>Investigating how the Solar System works by examining the Sun, Earth, Moon and planets and comparing their movements. Pupils investigate how the Earth's rotation causes day and night, create models and sundials to represent their understanding and consider how scientific ideas about the universe have changed over time.</i>	Animals, including humans: Circulation and health (6 lessons) <i>Learning about the circulatory system by exploring the roles of the heart, blood and blood vessels and using models to demonstrate how they work together. Pupils examine how lifestyle choices can affect health and investigate the relationship between exercise and heart rate.</i>
	Lent 2	Our beautiful planet (5 lessons) <i>Exploring the outdoor environment and identifying plants using the senses to observe and describe natural objects. The children learn about the parts of flowering plants through role-play, investigate what plants need to grow by planting seeds and explore simple ways to care for the natural world.</i>	Animals including Humans: Life Cycles and health (6 lessons) <i>Studying the life cycles of various animals, the children learn what animals need to survive, observe changes over time, collect and record data on their peers, develop measurement skills and consider how scientific knowledge supports healthy choices.</i>	Materials: Uses of everyday materials (6 lessons) <i>Recognising the suitability of materials for specific purposes, the children explore how actions like stretching and bending affect solid objects, compare material suitability through tests and record data.</i>	Animals: Movement and nutrition (6 lessons) <i>Investigating the human body by studying the skeleton, muscles and nutrition. Pupils identify key bones and their functions, compare human and animal skeletons, explore how muscles enable movement, learn how the body uses energy and what makes a balanced diet.</i>	Living things: classification and changing habitats (6 lessons) <i>Classifying living things by exploring different ways organisms can be grouped and evaluating the effectiveness of classification keys. Pupils investigate how habitats change over time and consider the positive and negative impact humans can have on the environment.</i>	Materials: Mixtures and separation (6 lessons) <i>Separating mixtures by exploring different methods, including filtering, sieving and evaporation. Pupils investigate how substances dissolve, identify solutions and examine how temperature affects the rate of dissolving, applying their learning by designing water filters and separating soil mixtures.</i>	Energy: Circuits, batteries and switches (6 lessons) <i>Understanding electrical circuits by learning how to represent them using conventional circuit diagrams and models. Pupils investigate current, resistance and voltage, compare the effects of different batteries on bulb brightness and apply their knowledge of circuits and switches to design and create practical electrical devices.</i>



	Pentecost 1		Plants: Plant growth (6 lessons) <i>Carrying out comparative tests, the children investigate the conditions for seed germination, measure stem height with rulers, record data in tables and learn through practical activities that plants need water, light and suitable temperatures to grow and stay healthy.</i>	Living things: Microhabitats (6 lessons) <i>Building on their knowledge of habitats, the children explore how microhabitats meet the needs of minibeasts, learn about scientific skills used to answer questions and plan and carry out an experiment to determine the conditions woodlice prefer.</i>	Materials: Rocks and Soil (6 lessons) <i>Classifying rocks by exploring their properties, uses and formation. Pupils investigate how fossils are formed and what they can reveal about the past, learn about the work of palaeontologists and explore soil formation through practical enquiries, including sedimentation and drainage tests.</i>	Materials: state of matter (6 lessons) <i>Investigating solids, liquids and gases by exploring the properties of different states of matter and how materials change state. Pupils use everyday examples to understand melting, freezing, evaporation and condensation and apply their knowledge to the water cycle.</i>	Living things: Life cycles and reproduction (6 lessons) <i>Comparing animal and plant life cycles by investigating reproduction, growth and survival. Pupils explore sexual and asexual reproduction in plants, grow cuttings and plot root growth, compare life cycles across animal groups and analyse secondary data to understand how predators and climate change can affect amphibians.</i>	Living things: Classifying big and small (6 lessons) <i>Classifying living things by exploring how vertebrates, invertebrates, plants and micro-organisms are grouped according to shared characteristics. Pupils learn about Carl Linnaeus and the development of scientific classification systems and apply their understanding by using and creating classification keys to identify organisms.</i>
	Pentecost 2		Making connections: (Ocean protectors) (5 lessons) <i>Consolidating knowledge of life cycles, habitats and food chains through ocean and rock pool exploration. Investigating what happens to litter when it is left in water and role-playing as a marine biologist to better understand how we can protect the oceans.</i>	Making connections: Fairytale Science (5 lessons) <i>Using fairytales as inspiration, the children broaden their understanding of animals, the senses and materials by gathering and recording data to investigate absorbency and the sense of touch, recapping the features of animal groups and building waterproof animal homes with natural materials.</i>	Making Connection: Does hand span affect grip strength? (5 lessons) <i>Experimenting with friction and grip by carrying out comparative tests, analysing data and drawing conclusions. Pupils investigate the relationship between hand span and grip strength, explore how different materials affect grip and apply their findings to design and evaluate friction gloves.</i>	Making connections: How does the flow of liquids compare? (5 lessons) <i>Comparing the properties of liquids by investigating how different substances flow and exploring ways to measure and represent their results. Pupils plan and carry out their own enquiries, draw conclusions from data and consider how the flow of liquids influences the design and use of medicines.</i>	Animals: Human timeline (3 lessons) Making connections: Does the size of an asteroid affect the diameter of its impact crater? (3 lessons)	Making connections: Are some sunglasses safer than others? (6 lessons) <i>Evaluating sun safety by investigating how different sunglasses protect the eyes from light and UV radiation. Pupil's plan and carry out enquiries, use their knowledge of electrical circuits to create a light source for testing, analyse their results and communicate their conclusions through presentations and advertisements.</i>