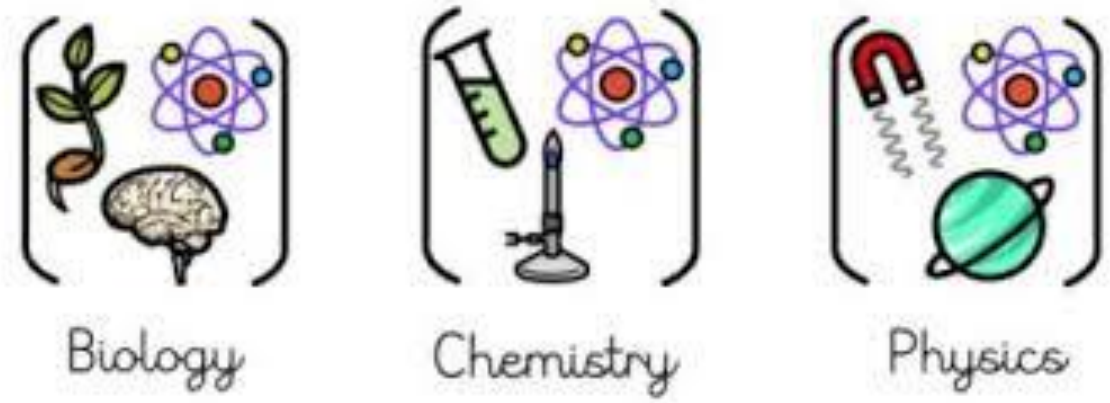
Science

St Martin's Catholic Primary school

Science Policy



Subject Lead: Mrs C Ming
Approved By Governors: November 2024
Review: September 2026

This policy also should be read alongside the new National Curriculum in England and other relevant documents from the DfE.

LOVE TO LEARN AND LEARN TO LOVE!

Science

We are Scientists!

Science Curriculum Intent

At St Martin's we believe passionately that the fundamental skills and knowledge of the science curriculum are an essential underpinning of development for all children. We strive to ensure that what we offer is an environment in which every child can explore and discover our wonderful world for themselves and become independent learners with a curiosity and love of learning that will last a lifetime.

At the heart of the national curriculum for science is a diverse range of material that ensures all pupils explore science in both breadth and depth. We believe that it is particularly important to encourage a sense of independence and critical thinking within science. We seek to ensure that by being open to new concepts, keen to explore and discover, and questioning of any and all ideas our children will always be pushing themselves to their maximum scientific potential.

St Martin's children love to learn and learn to love and science is a key part of that ethos. Our curriculum is constructed to maximise the opportunities for children to learn practically and also through peer to peer group discussion in which we, as facilitators, enable children to see themselves as the most important tool in their own development. By providing a broad range of rich, practical experiences and exciting, challenging debates we prepare our children for a future in which the fundamental skills of scientific enquiry will be core component of all aspects of their lives.

Implementation statement

Teachers at St Martin's Catholic Primary School offer children a progressive curriculum; building on skills and knowledge of the previous year group and developing within the year groups. Teachers at St Martin's Catholic Primary generate enthusiasm and ensure that children are afforded the opportunity to succeed with high expectations.

Planning for science is a process in which all teachers are involved to ensure that the school gives full coverage of, 'The National Curriculum programmes of study for Science 2014' and, 'Understanding of the World' in the Early Years Foundation Stage. Science teaching at St Martin's Catholic Primary School involves adapting and extending the curriculum to match all pupils' needs.
Where possible, Science is linked to class topics. Science is taught as discrete units to ensure comprehensive coverage. Science units are taught on a year rolling programme in line with the coverage of the National Curriculum. This ensures progression between year groups and permits children to have a spiral, developing experience of Science. Teachers plan to suit their children's interests, current events, their own teaching style, the use of any support staff and the resources available.

Science

We ensure that all children are provided with rich learning experiences that aims:

- To develop a love of science; to enthuse children and make learning fun.
- To build on children's curiosity and sense of awe in the natural world.
- To ensure children experience all five scientific enquiries: observation, testing, research, classifying and identifying and pattern seeking by becoming scientists in the classroom.
- To make learning purposeful, to make cross-curricular links and for children to experience 'real life' concepts. (Maths, English, Computing in particular)
- To increase children's scientific vocabulary and the language of science.
- To ensure children use a range of equipment accurately and safely through hands on investigations and observations.
- To develop learning in the outdoors; to increase children's confidence and natural curiosity of the world around them, and in some cases re-acquaint with the natural world.
- To give children varied opportunities, through active participation. All children are exploring and following their own lines of enquiry. At times investigations are child led.
- To make sense of the world they live in and understand the processes and reasons why things happen. To understand and make a difference to the world e.g. how to look after the environment, how to stay fit and healthy. Increasingly, a solid understanding of climate change and the public discourse surrounding it.
- To develop a range of skills through the working scientifically strand of the curriculum:
- measuring, analysing, presenting and reasoning.
- To develop children's aspirations of potential careers in science through talking about the work of scientists and how they can make a difference to others.
- To introduce STEM (Science, Technology, Engineering and Maths) into the curriculum so that children can work on project-based investigations which involve a range of skills across the curriculum.

Science is taught in each year group based on the 2014 National Curriculum objectives. Science lessons should be rich in questioning to develop a deeper understanding of concepts, engaging and exciting. Learning should be inclusive for all learners; with adaptations to activities or teacher/TA support to ensure all children make progress. Children who grasp concepts quickly will be challenged through application activities/questions, using open ended tasks. This will give children opportunities to reason, explain and demonstrate their learning.

Children should have a range of group and individual tasks, where children are solving problems, communicating with their peers and involved in hands on practical science. All lessons should be purposeful and inject a sense of excitement and anticipation as to what the children may be learning next.

All lessons should be focused around the knowledge statements designed in our curriculum and also the working scientifically skills- how children are going to grasp the concepts in the lesson.

Science

Introduction sheets should be used to provide the basis from which learning should commence. Where possible, links to real life should be made and children should be working as scientists to promote independence in problem solving and thought processes. Opportunities for cross curricular learning and STEM activities are encouraged and for children to learn through discovery and play. Children should have opportunities to pose questions and have time to find the answers to these questions for themselves- deciding what line of enquiry they need to take. Some lessons may involve inviting in scientists, specialists and visitors to inspire the children and learn about potential careers in the science field to raise aspirations.

Teachers at St Martin's Catholic Primary have a focus on scientific vocabulary and value scientific discussion through resources such as Developing Experts. This is used during a topic in order to show clear progression and to contribute and enhance children's newfound knowledge and understanding. These tasks also enable the children to articulate scientific concepts clearly and precisely, assisting them in making their thinking clear, both to themselves and others. Furthermore, Teachers present enthusiasm for the subject and draw attention to the impact of skills; ensuring that children are able to develop their oracy skills and Science Capital.

Assessment

The children's knowledge and understanding are assessed before each unit of work; this can take many forms such as discussion, mind maps, KWL charts and concept maps. This summarises knowledge and understanding of the key topic.
These key points are used to refine and identify the starting points and level of challenge for the children's lessons. These initial assessments are revisited at the end of the unit and new knowledge and understanding is added. Children also complete mini quizzes where suitable to assess their key understanding of the topic at the end of the unit. Alongside lesson-by-lesson assessment for learning, teachers will decide whether children are working below, at or above the National Curriculum expectations for their year group. This information is entered onto the science assessment tracker and progress and attainment are reported to parents in the annual report. Teachers plan and assess from the National Curriculum.
Children's work is evidenced in a variety of ways in their science books, on seesaw and class displays, which demonstrate their key understanding and the skills they have acquired. The learning objectives in the book are highlighted in a pink highlighter if the children have fully understood the concept and green if they have not quite understood fully. Mastery opportunities are also planned for the children, which gives children chance to apply their learning to deepen their knowledge. Open-ended questions are also used for this purpose. All written work is marked in line with the school's marking policy and formative assessment is documented in whole class feedback books.

Science

The contribution of science to teaching in other curriculum areas

English
Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. Some of the texts that the children study in Literacy are of a scientific nature. The children develop oral skills in science lessons through discussions (for example of the environment) and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information.

Mathematics
Science contributes to the teaching of mathematics in a number of ways. The children use weights and measures and learn to use and apply number. Through working on investigations they learn to estimate and predict. They develop the skills of accurate observation and recording of events. They use numbers in many of their answers and conclusions. They also produce diagrams, charts and graphs using the data from real investigations.

Computing
Children use Computing skills in science lessons where appropriate. They use it to support their work in science by learning how to find, select, and analyse information on the Internet and from digital devices such as data loggers. Children use computing (computer, iPads and camera) to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

Personal, social and health education (PSHE) and citizenship
Science makes a significant contribution to the teaching of personal, social and health education. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. For example, children study the way people recycle material and how environments are changed for better or worse. Secondly, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions. Science promotes the concept of positive citizenship.

Spiritual, moral, social and cultural development
Science teaching offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the nature of our world. Science raises many social and moral questions. Through the teaching of science, children have the opportunity to discuss, for example, the effects of smoking and the moral questions involved in this issue. We give them the chance to reflect on the way people care for the planet and how science can contribute to the way we manage the earth's resources. Science teaches children about the reasons why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people.

Science

Monitoring and review

Role of the Subject Leader:

- To be enthusiastic about science and demonstrate good practice
- Track progress and attainment through the school.
- Monitor displays and science learning opportunities throughout the school.
- Conduct book scrutinies and ensure books show progression, support and opportunities for children to master and apply their learning.
- Co-ordinate assessment procedures and record keeping so as to facilitate progression and development through the school.
- Ensure the quality of teaching and learning in the school is of a good or better standard.
- Maintain resources and support teachers teaching the curriculum (this includes sourcing external funding)
- To Coordinate external science visitors and plan science weeks.
- Support staff by providing science CPD and updates, encourage staff by sharing good ideas and organising in service and external training where required.
- Be aware of national and local developments through reading relevant materials and attending courses and hub meetings.
- Liaise with science coordinators from other schools to compare and share good practice.
- Facilitate parental involvement by organising workshops.
- Work to achieve equality of opportunity throughout the school.
- Look for opportunities for children to be involved in science weeks and joint school events.
- Promote STEM and cross curricular learning through the school.
- Ensure the science policy is reviewed and updated regularly.
- To inspire children and raise their aspirations in science based careers.
- Ensure teachers are providing safe practice through their lessons and seek advice where needed.

Health and Safety:

Children will be taught to use scientific equipment safely during practical activities. Class teachers and teaching assistants will check equipment before use to ensure it is safe to use, all damages will be reported to the science lead and the defective equipment will be taken away from children. A simple risk assessment will be carried out for all practical activities and any perceived hazards will be actioned appropriately. Safe practice must be promoted at all times.

Science

IMPACT

The successful approach at St Martin's results in a fun, engaging, high-quality science education, that provides children with the foundations and knowledge for understanding the world.

Our engagement with the local environment ensures that children learn through varied and first-hand experiences of the world around them. Frequent, continuous and progressive learning outside the classroom is embedded throughout the science curriculum. Through various workshops, trips and interactions with experts and local charities, children have the understanding that science has changed our lives and that it is vital to the world's future prosperity. Children learn the possibilities for careers in science, as a result of our community links and connection with NHS career service and sessions with other professionals/ videos from developing experts – this ensures that children have access to positive role models within the field of science from the immediate and wider local community.

From this exposure to a range of different scientists, all children feel they are scientists and capable of achieving. Children overwhelmingly enjoy science, and this results in motivated learners with sound scientific understanding.