

St. Michael Catholic Primary and Nursery School

Science Policy



"I came so that you may have life, life in all its fullness" John 10:10

St Michael Catholic Primary School and Nursery is a Catholic family of faith following the teachings of Christ. We strive to create an environment where all members of our school community respect the values of: Church, Independence, Resilience, Caring, Learning and Enjoyment for all. Belief in these values will nurture all as individuals and instil in them the confidence to meet their full potential, providing them with the best grounding for their future place in an ever-changing world.

Policy Date	September 2026
Signed by Head Teacher	Mrs N Collins
Review Date	September 2027

Intent

At St Michael Catholic Primary and Nursery School, we envision a Science education that fosters curiosity, critical thinking and a lifelong love of learning. Our primary goal is to inspire pupils to explore, question and understand the natural world around them.

Science is a core subject within the National Curriculum and this policy outlines the purpose, nature and management of Science taught at St Michael Catholic Primary and Nursery School.

Our curriculum is carefully designed and sequenced to ensure that every child develops both substantive scientific knowledge and disciplinary knowledge through Working Scientifically.

Working Scientifically is at the heart of our Science curriculum. Pupils progressively develop the skills of questioning, observing, testing, classifying, researching, measuring, recording, analysing and evaluating as they move through the school. Through a wide range of investigations and scientific enquiries, pupils learn to think and work like scientists.

The National Curriculum aims to ensure that all pupils:

- Develop scientific knowledge and conceptual understanding through the disciplines of biology, chemistry and physics.
- Develop understanding of the nature, processes and methods of science through different types of scientific enquiry.
- Are equipped with the scientific knowledge and skills required to understand the uses and implications of science both now and in the future.

At St Michael Catholic Primary and Nursery School, we ensure pupils acquire and develop the key knowledge identified within each unit and year group whilst also developing the ability to work scientifically. We build upon prior learning so that pupils know more, remember more and can apply their scientific understanding confidently.

Through Science, pupils also develop an understanding of stewardship and their responsibility to care for God's creation. They explore environmental issues and consider how scientific understanding can contribute to a more sustainable future.

Aims

The main aim of Science teaching and learning at St Michael Catholic Primary and Nursery School is to deepen children's understanding and appreciation of the world around them.

Our Science curriculum enables pupils to:

- Develop questioning and enquiring minds.
- Develop the skills required to work scientifically.
- Investigate and solve practical problems.
- Foster a positive attitude towards Science.
- Develop an understanding of how Science contributes to everyday life.
- Develop and apply accurate scientific vocabulary.
- Ignite curiosity and wonder.
- Develop transferable skills such as observation, communication, teamwork and critical thinking.
- Become increasingly confident in explaining scientific ideas and conclusions.
- Make informed decisions about science, technology, health and the environment.
- Understand the opportunities and challenges presented by scientific and technological developments.

Implementation

Teaching and Learning

Science is delivered at St Michael Catholic Primary and Nursery School using a variety of teaching and learning approaches.

Our principal aim is to develop children's knowledge, skills and understanding through practical experiences, first-hand investigations and meaningful scientific enquiry.

Children are regularly encouraged to ask and answer their own scientific questions and participate in enquiry-based activities. They are provided with opportunities to use data, graphs, statistics, photographs and real-world examples to deepen understanding.

Science lessons promote discussion, collaboration, investigation and problem solving. Pupils are encouraged to think independently whilst also working effectively with others.

Science lessons are taught weekly and are carefully sequenced to ensure progression throughout EYFS, Key Stage 1 and Key Stage 2.

When topics are revisited, knowledge and skills are extended and deepened so that pupils develop increasingly sophisticated scientific understanding.

Retrieval practice is regularly used to help pupils remember and apply previous scientific learning. Scientific vocabulary is explicitly taught, revisited and embedded throughout units of work to develop confidence and precision when communicating scientific ideas.

Pupils are encouraged to explain their thinking, justify conclusions, discuss findings and use accurate scientific language through structured talk opportunities.

Lessons are adapted appropriately to ensure that all pupils access the same ambitious curriculum while maintaining high expectations for all learners.

Pupils are encouraged to develop the skills of:

Working Scientifically Skills
Making observations
Raising questions
Planning investigations
Predicting
Estimating
Accurate measuring
Problem solving
Evaluating
Drawing conclusions
Creating scientific ideas
Testing hypotheses
Sorting and classifying
Collecting and interpreting data
Carrying out fair tests
Explaining findings using scientific vocabulary

Engaging Lesson Starters

At St Michael Catholic Primary and Nursery School, we believe that the beginning of a Science lesson is a crucial opportunity to ignite curiosity and stimulate scientific thinking.

Concept Cartoons, retrieval activities and quizzes are used regularly to engage pupils and encourage scientific discussion and reasoning.

These opportunities help teachers identify misconceptions and provide children with opportunities to challenge ideas, justify opinions and refine their understanding.

Planning

We recognise that learning is a cumulative process. Our Science curriculum is designed to build upon pupils' prior knowledge, creating a coherent sequence of learning that supports progression, depth and long-term retention.

A whole-school overview identifies how Science is taught across each phase and year group. Science topics are taken directly from the National Curriculum and are planned on a half-termly basis to ensure full curriculum coverage and clear progression.

Science is taught as a discrete subject and lessons include:

- National Curriculum objectives
- Clear learning intentions
- Success criteria
- Explicit scientific vocabulary
- Practical investigation opportunities
- Working Scientifically skills
- Formative assessment opportunities
- Retrieval opportunities to revisit prior learning

Knowledge and skills are carefully sequenced so that pupils progressively develop scientific understanding throughout their time at school.

Teachers use assessment information and knowledge of pupils to adapt learning appropriately whilst maintaining high expectations for all learners.

Digital Learning in Science

Technology is used purposefully to enhance scientific learning through research, investigation, data collection, analysis and presentation.

Pupils learn how digital tools can support scientific enquiry whilst developing the skills needed to use technology safely, responsibly and critically.

Technology may be used to:

- Research scientific concepts
- Collect and analyse data
- Present findings
- Explore simulations
- Develop scientific vocabulary
- Enhance investigation and enquiry

As digital technologies continue to evolve, including Artificial Intelligence (AI), pupils are introduced to emerging technologies in age-appropriate ways.

They learn that information obtained online, including AI-generated content, should always be evaluated critically and checked for accuracy, reliability and possible bias.

Pupils are encouraged to think independently, question information and use technology responsibly when conducting scientific research.

Impact

Assessment

Teacher assessment is used continuously throughout the teaching and learning process and supports responsive teaching.

Assessment for learning is ongoing throughout planning, teaching and learning and is used to identify strengths, misconceptions and next steps.

Children's progress is tracked using the school's agreed assessment systems.

Assessment may include:

- End of topic assessments
- Retrieval quizzes
- Observation of practical investigations
- Questioning and discussion

- Analysis of children's work
- Scientific explanations and reasoning
- Investigation outcomes
- Vocabulary assessment

Children are encouraged to identify what they already know about a topic and what they would like to learn. Teaching is then adapted appropriately to meet pupils' starting points and interests.

In EYFS, children are assessed through the Understanding the World area of learning alongside wider observations linked to child development.

EYFS

The Foundation Stage delivers scientific learning primarily through the Understanding the World strand of the EYFS curriculum.

Children are encouraged to make sense of their physical world and community through opportunities to:

- Explore
- Observe
- Investigate
- Question
- Predict
- Talk about findings
- Make connections

Children learn through carefully planned adult-led activities and high-quality continuous provision.

Science learning is also supported through Communication and Language, Mathematics and Expressive Arts and Design.

Through these experiences, children begin developing the curiosity, language and observational skills that form the foundations of future scientific learning.

English

Science contributes significantly to the teaching of English by actively promoting reading, writing, speaking and listening skills.

Scientific learning provides meaningful opportunities for pupils to:

- Read scientific texts
- Develop technical vocabulary
- Engage in discussion and debate
- Explain scientific ideas
- Present findings
- Write reports
- Produce information and explanation texts

Pupils develop oral communication skills through scientific discussions, investigations and collaborative learning activities.

Writing opportunities allow pupils to record observations, write explanations, draw conclusions and communicate scientific understanding effectively.

Mathematics

Science contributes significantly to the teaching of Mathematics.

Pupils use mathematical knowledge and skills when:

- Measuring accurately
- Recording data
- Creating charts and graphs
- Calculating results
- Estimating outcomes

- Finding patterns
- Interpreting information
- Drawing conclusions from evidence

Through scientific investigations, pupils develop confidence in applying mathematical understanding in meaningful and purposeful contexts.

Key Stage 1

In accordance with the National Curriculum, the principal focus of Science teaching in Key Stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and human-made world around them.

Pupils are encouraged to develop curiosity about the world and ask simple scientific questions about what they notice. They begin to use practical experiences to support their understanding of scientific concepts.

Science is taught weekly and children progressively build their knowledge and understanding across Year 1 and Year 2.

Year 1	Year 2
Plants	Living Things and Their Habitats
Animals Including Humans	Plants
Everyday Materials	Animals Including Humans
Seasonal Changes	Uses of Everyday Materials

Through these topics, pupils begin to develop Working Scientifically skills through observation, classification, pattern seeking, simple comparative testing and recording findings.

Lower Key Stage 2

The National Curriculum states that the principal focus of Science teaching in Lower Key Stage 2 is to enable pupils to broaden their scientific view of the world around them.

Pupils do this through exploring, talking about, testing and developing ideas.

Science continues to be taught weekly and pupils develop an increasingly secure understanding of scientific concepts and vocabulary.

Year 3	Year 4
Plants	Living Things and Their Habitats
Animals Including Humans	Animals Including Humans
Rocks	States of Matter
Light	Sound
Forces and Magnets	Electricity

Pupils begin to make more systematic observations, carry out fair tests, record findings in different ways and draw conclusions using evidence.

Upper Key Stage 2

The principal focus of Science teaching in Upper Key Stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas.

Pupils build on prior knowledge and begin to explain concepts, evaluate evidence and use scientific reasoning more confidently.

Science continues to be taught weekly and provides opportunities for increasingly independent scientific enquiry.

Year 5	Year 6
Living Things and Their Habitats	Living Things and Their Habitats
Animals Including Humans	Animals Including Humans
Properties and Changes of Materials	Evolution and Inheritance
Earth and Space	Light
Forces	Electricity

Pupils are encouraged to think critically, challenge ideas respectfully and communicate their scientific understanding using increasingly sophisticated scientific vocabulary.

Catholic Social Teaching (CST)

Incorporating Catholic Social Teaching into every facet of our Science curriculum is central to fostering a holistic education that aligns with our school's deeply rooted values.

Catholic Social Teaching provides a moral compass that guides pupils towards a deeper understanding of compassion, justice, stewardship and the dignity of every person.

By making meaningful links between science and Catholic Social Teaching, pupils are encouraged to consider how scientific discoveries and developments impact individuals, communities and the wider world.

Through this integrated approach, pupils learn to:

- Respect and care for God's creation.
- Consider ethical questions linked to scientific developments.
- Recognise the importance of stewardship and sustainability.
- Understand the responsibility that comes with scientific knowledge.
- Develop compassion for those affected by global challenges.

This holistic educational experience empowers pupils to become not only knowledgeable learners but also compassionate advocates for positive change who seek to contribute to the Common Good.

Lightbulb Questions

At St Michael Catholic Primary and Nursery School, Lightbulb Questions provide opportunities for deeper thinking and reflection.

These questions support:

- Scientific reasoning
- Knowledge consolidation
- Critical thinking
- Problem solving
- Ethical reflection
- Links to Catholic Social Teaching

Lightbulb Questions encourage pupils to justify their ideas, explain their thinking and apply scientific knowledge in meaningful contexts.

They help pupils:

- Make links between current and prior learning.

- Explore different viewpoints.
- Develop higher-order thinking skills.
- Deepen their scientific understanding.
- Reflect on how scientific learning connects to everyday life and the wider world.

By encouraging thoughtful discussion and reflection, Lightbulb Questions help pupils become confident communicators and independent thinkers.

Cross-Curricular Links

When given the opportunity, pupils should be encouraged to use skills from other areas of the curriculum to demonstrate and deepen their scientific understanding. This allows pupils to consolidate knowledge and transfer skills across different areas of learning.

Writing

Pupils may apply their English skills through:

- Letters
- Diary entries
- Newspaper reports
- Scientific reports
- Information texts
- Explanation texts
- Persuasive writing

Mathematics

Science provides opportunities for pupils to apply mathematical skills through:

- Measuring
- Data handling
- Graphs and charts

- Statistics
- Problem solving
- Pattern spotting
- Calculation

History

Pupils learn about:

- Significant scientists
- Scientific discoveries
- Inventions
- How scientific developments have changed society
- The impact of science throughout history

Computing

Pupils enhance scientific learning through:

- Research
- Data collection
- Data analysis
- Digital presentations
- Digital recording of observations
- Use of scientific software and applications

Science also supports pupils in developing digital literacy and critical evaluation skills when using online information.

Inclusivity (SEND, EAL, Pupil Premium and Higher Attaining Pupils)

At St Michael Catholic Primary and Nursery School, we are committed to ensuring that all pupils are able to access and succeed within the Science curriculum.

We recognise that every child is unique and may require different levels of support or challenge in order to achieve their full potential.

Teaching is adapted through:

- Scaffolding
- Visual supports
- Practical experiences
- Vocabulary support
- Modelled examples
- Adult guidance where appropriate
- Carefully planned learning tasks

Our approach ensures that pupils with Special Educational Needs and Disabilities (SEND) are fully included in scientific learning, investigations and practical activities.

Particular attention is given to pupils who:

- Have SEND
- Are disadvantaged
- Are currently known to social care
- Have previously been known to social care
- Are young carers
- Face additional barriers to learning
- Speak English as an Additional Language

Pupils are supported to participate fully in investigations, discussions and practical activities and are encouraged to develop confidence as young scientists.

Higher Attaining Pupils

Higher attaining pupils are provided with opportunities to deepen learning through:

- Open-ended investigations

- Higher-order questioning
- Problem-solving activities
- Independent enquiry
- Designing their own investigations
- Critical evaluation of evidence

Bloom's Taxonomy questioning stems are used to encourage increasingly sophisticated thinking and scientific reasoning.

Equal Opportunities

At St Michael Catholic Primary and Nursery School, we are committed to promoting equality, diversity and inclusion through Science.

We actively seek to broaden pupils' understanding of the diverse range of people who have contributed to scientific knowledge.

Pupils are introduced to scientists from a range of:

- Backgrounds
- Cultures
- Ethnicities
- Genders
- Historical periods

This helps pupils recognise that science is accessible to everyone and encourages aspirations for all learners.

We are committed to ensuring all pupils have equal access to high-quality Science learning regardless of ability, need, gender, faith or background.

Resources

Science resources are stored centrally and organised according to the areas of Science to which they relate.

The school recognises the value of high-quality resources and seeks to ensure that pupils have access to a broad range of scientific equipment and materials.

Resources are regularly reviewed and updated to ensure they:

- Support curriculum delivery
- Reflect current scientific understanding
- Remain safe and fit for purpose
- Encourage practical and investigative learning

Staff are responsible for the appropriate use, storage and maintenance of resources.

Health and Safety

When working with scientific equipment and materials during practical activities, teachers must ensure that pupils understand any potential hazards and are taught how to work safely.

The safety of pupils and staff is paramount.

Teachers will:

- Carry out risk assessments where appropriate
- Follow school Health and Safety procedures
- Ensure equipment is suitable and safe to use
- Model safe scientific practice
- Teach pupils how to use equipment responsibly

Pupils are encouraged to take responsibility for their own safety and the safety of others while participating in practical investigations.

Monitoring and Review

It is the responsibility of the Science Subject Leader and Senior Leadership Team to monitor the quality of Science education across the school.

Monitoring activities include:

- Lesson visits
- Learning walks
- Planning reviews
- Work scrutiny
- Pupil voice
- Assessment analysis
- Curriculum reviews
- Discussions with staff and pupils

Monitoring ensures:

- Consistency of provision
- Progression of knowledge and skills
- Effective implementation of the curriculum
- High-quality teaching
- Strong pupil outcomes
- Appropriate challenge and support for all learners

The Science Subject Leader is responsible for:

- Supporting colleagues in the teaching of Science
- Keeping informed about developments in Science education
- Providing strategic leadership for the subject
- Reviewing curriculum provision
- Identifying priorities for improvement

Findings from monitoring activities inform future school development priorities and professional development opportunities.

Success in Science is demonstrated when pupils know more, remember more and can confidently apply their scientific understanding and enquiry skills in a variety of contexts.

End of Policy

This policy should be read alongside:

- Curriculum Policy
- Assessment Policy
- Teaching and Learning Policy
- SEND Policy
- Equality Policy
- Health and Safety Policy

Science at St Michael Catholic Primary and Nursery School provides pupils with the knowledge, skills and curiosity needed to understand the world around them, care for God's creation and become responsible, informed citizens of the future.