



St Mary's CE Primary School  
N8 7QN

# Science Policy

Jesus said, "Love one another as I have loved you." (John 15:12)

## Our Vision

As we love, we flourish  
As we flourish, we aspire  
As we aspire, we achieve  
Together, we are a family.

Friendship, Compassion, Hope, Wisdom,  
Community, Endurance.

# **St Mary's CE Primary School**

## **POLICY FOR SCIENCE**

### **Introduction:**

Through our daily school life at St Mary's Church of England Primary School, we encourage our children to build respectful friendships and demonstrate compassion towards others. Through this we build a strong community spirit, as together we are a family. Our teaching and learning provides the children with the wisdom and endurance they need to expand their minds socially, morally and academically so allowing them to achieve and flourish and fulfil 'Life in all its Fullness.' (John 10:10). We encourage our children to demonstrate and develop a dignity in their work and themselves which enables them to hope to aspire to be the best they can possibly be.

### **Aims and objectives:**

At St Mary's, we recognise the natural curiosity of our pupils and encourage them to develop this curiosity throughout their time at school and beyond. We know that a high-quality science education provides a foundation for children to understand the world through the acquisition of knowledge, concepts, skills and positive attitudes, and believe that every pupil should have access to this in order to be prepared for life in the 21<sup>st</sup> century. By providing a rigorous and engaging science education, we aim to help our pupils to aspire to take advantage of opportunities, responsibilities and experiences in later life, while promoting a healthy respect for the universe and all living things within it.

### **Curriculum:**

Following the framework of the National Curriculum, St Mary's science covers a variety of scientific topics each half-term, which aim to develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. While developing our pupils' knowledge, we also hope to enhance their understanding of the nature, processes and methods of science, equipping them with the skills they need to apply what they have learnt in a scientific way. Therefore, we ensure that each lesson has a skill-based focus, built on a foundation of supporting knowledge and a secure understanding of technical vocabulary. Children are given regular opportunities to answer scientific questions through the five main strands of scientific enquiry:

- Observing over time
- Looking for patterns in their observations and results
- Identifying, classifying and grouping
- Carrying out controlled investigations using comparative and fair testing
- Researching using secondary sources

As well as learning how to work scientifically, children at St Mary's are taught to apply their mathematical knowledge by collecting, presenting and analysing data in their science lessons. This is done in a range of ways, including through the use of ICT to share their findings in diagrams, graphs and charts. For example, in KS2 children are taught to measure their pulse rate to find out how hard their heart is working and then collect and analyse the data to evidence what happens to their heart when they exercise. This data is then presented in a variety of graphical formats.

### **How science is structured through the school:**

We teach science in Reception classes as an integral part of the topic work covered during the year. As reception is part of the Foundation Stage of the National Curriculum, we relate the scientific aspects of the children's work to the objectives set out in the new 'Statutory Framework for the Early Years Foundation Stage' and 'Development Matters' document. Science makes a significant contribution to the objectives in the EYFS of Understanding the World, as well as the Characteristics of Effective Learning.

Reception through to Year 6 follow the progression outlined in the resources produced by the Association of Science Education. These resources, based on the National Curriculum for Science, ensure teachers are staying within the boundaries of their topics and not encroaching on other year group's topics. All children are taught Science by Working Scientifically.

During years 1 and 2, pupils will be taught to:

- ask simple questions and recognise that they can be answered in different ways;
- observe closely, using simple equipment
- perform simple tests

- identify and classify
- use their observations and ideas to suggest answers to questions
- gather and record data to help answer questions.

During years 3 and 4, pupils will be taught to:

- ask relevant questions and use different types of scientific enquiries to answer them
- set up simple practical enquiries, comparative and fair tests
- make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gather, record, classify and present data in a variety of ways to help in answering questions
- record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identify differences, similarities or changes related to simple scientific ideas and processes
- use straightforward scientific evidence to answer questions or to support their findings.

During years 5 and 6, pupils will be taught processes and skills through the teaching of the programme of study content:

- plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- use test results to make predictions to set up further comparative and fair tests
- report and present 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
- identify scientific evidence that has been used to support or refute ideas or arguments.

Each class will have one taught science lesson per week (an afternoon per week). This ensures progression between year groups and guarantees topics are covered and revisited. Teachers are expected to adapt and modify the model plans to suit their children's interests, current events, their own teaching style, the use of any support staff and the resources available.

### **Equal Opportunities:**

At St Mary's CE Primary School we are committed to providing all children with an equal entitlement to scientific activities and opportunities regardless of ethnic origin, gender, class, aptitude or disability. We also take into consideration children's Moral, Social, Cultural and Spiritual values.

### **Inclusion:**

In school we aim to meet the needs of all our children by differentiation in our science planning and in providing a variety of approaches and tasks appropriate to ability levels. This will enable children with learning and/or physical difficulties to take an active part in scientific learning and practical activities and investigations and to achieve the goals they have been set. Some children will require closer supervision and more adult support to allow them to progress whilst more able children will be extended through differentiated activities. By being given enhancing and enriching activities, more able children will be able to progress to a higher level of knowledge and understanding appropriate to their abilities.

### **Assessment and Monitoring:**

Assessment for learning is continuous throughout the planning, teaching and learning cycle. A variety of assessment methods are used, which include:

- Assessment of prior knowledge at the beginning of a unit, for example: KWL grids, 'Odd One Out' tasks
- Observing children at work, individually, in pairs and in groups
- Questioning and talking to children about their work
- Low-stakes quizzes on concepts/skills that have already been taught
- Regular book scrutinies which monitor pupils' learning
- End of unit assessment tasks

Children's progress is continually monitored and tracked throughout their time at St Mary's CE Primary School.

**Health and Safety:**

Where appropriate, reminders will be given to children about potential hazards and care of the equipment they are using. Any trips, visits or outreach programmes visiting our school should have been planned with due regard to the school policy on taking children on outings. LA guidance may need to be sought on trips involving farms etc.