

Science

Intent

At St Mary's we aim to inspire children to want to know more about their understanding of the world through Scientific disciplines of Biology, Chemistry and Physics.

In an ever changing world, where our children's future jobs may not even exist yet, it is vital that our children understand how science has already changed their lives and how it may shape their future.

We aim to provide children with scientific knowledge and processes but also give them the real world uses of this science. Our children are encouraged to recognise the power of rational explanation through exciting investigations, which build upon their natural curiosity. They are expected to:

- Try to explain what is occurring;
- Use appropriate scientific vocabulary and ideas;
- Explain the 'why'

We provide a range of different types of scientific enquiry throughout the children's time at St Mary's and also encourage open-ended questioning, where they decide how to try and find the answer. It is important that children are not always directly guided to the 'right' answer and they realise that some of the most significant scientific advancements occurred from mistakes or someone saying 'What if...?'

As well as using technical terminology accurately and precisely, children will also apply their mathematical knowledge to their understanding of science, including:

- collecting,
- presenting,
- and analysing data.

We believe that as well as being able to understand a scientific enquiry for themselves, it is important our children can also explain this coherently and with a critical mind to someone else.

Implementation:

St Mary's uses a range of strategies to introduce, explore and fully understand scientific learning. When required, this will be adapted to best suit each class and each individual as a learner so they are able to make their personal best progress with their learning.

Each year group's objectives come from the national curriculum and these have been aligned to fit with the associated umbrella topics, within an appropriate time of year and within the children's developmental stages so they are best able to access the learning.

Revision of key concepts and knowledge are revised regularly through low stake quizzes and a 'flashback focus' of 5 questions at the start of each science lesson, so that teachers are able to assess pupils' understanding.

Key questions that aim to:

- draw out and deepen understanding;
- move learning along;
- address potential misconceptions

Children need to be shown that there are a variety of types of scientific investigations and be taught these across their time in school:

- fair testing
- surveys and patterns in data
- classification
- exploring and observing over time
- problem solving
- investigating a 'model'

They will develop an understanding of what the differences are between these types of investigations, the pros and cons of each, as well as when it is best to select a particular approach. As children move through KS2 they may be given the opportunity to choose their own approach to learning and how best to investigate.

Visits to local attractions, as well as visitors coming into school are helping our children to gain further knowledge and understanding of the subject. Teachers also encourage real world scenarios where scientific learning applies to show the children the types of occupations that might use this learning.

Impact

If our intent and implementation are successful, then at St Mary's we would expect to see:

- A broad and engaging curriculum that makes use of a range of resources, such as visitors and local attractions
- Children and staff who are enthusiastic about scientific learning
- Children and staff who can speak confidently about science, including uses in the real world
- Children who can use appropriate scientific vocabulary in written and oral form
- All children being successful in sharing their understanding of scientific concepts
- Children who can make links between different areas of science and other subject areas
- Children who can recall prior scientific learning when required and use this to understand new learning
- Children increasingly being able to instigate their own investigations confidently and interpreting their findings
- Staff who are able to anticipate potential misconceptions and address these confidently
- Children meeting their age-related expectations in science consistently