



Science Policy Policy Statement

Vision

We believe that science teaching should stimulate and excite children's natural curiosity about phenomena and events in the world around them.

We believe that science should be taught through an enquiry-based approach, involving as much hands-on practical activity as possible. Children are encouraged to be scientists by asking questions, testing their ideas, recording their findings and analysing and evaluating their findings to answer their question. This supports the development of critical and creative thinking.

Through science, pupils understand how major scientific ideas contribute to technological change- impacting on industry, business and medicine and improving the quality of life. They learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world they live in.

Intent

In teaching science, we are developing in our children:

- a positive attitude towards science and a curiosity and excitement about the world around them
- an understanding of science through a process of enquiry and investigation
- confidence and competence in scientific knowledge, concepts and skills
- an ability to reason, predict, think logically and to work systematically and make simple measurements accurately
- an ability to evaluate their findings and make reasoned explanations
- an ability to communicate scientifically
- an ability to recognize hazards and risks when working with living things and think of ways to mitigate or control them
- the initiative to work both independently and in co-operation with others
- the ability and understanding to use and apply science across the curriculum and real life.

The content of science teaching and learning is set out in the 2014 National Curriculum for primary schools in England.

Within this, certain topics and areas are repeated across year groups, meaning that children may revisit a particular topic in each year of primary school but with increasing difficulty and with a different focus each time.

For example, the area of animals, including humans is examined in every single year group, with a very clear progression of knowledge and understanding over the different years: The more detailed content for each year group is as follows:

Year 1

- Plants (basic structure)
- Animals including humans (basic knowledge of parts of human body and comparing animals)
- Everyday materials (describing properties)
- Seasonal changes.

Year 2

- Plants (what plants need to grow)
- Animals including humans (needs for survival, food and hygiene)
- Use of everyday materials (explore and compare materials for uses)
- Living things and their habitats (explore variety of habitats, simple food chains).

Implementation

Science is taught through a clear and comprehensive scheme of work (White Rose Science) in line with the National Curriculum, EYFS and KS1 curriculum where teaching and learning shows progression across all key stages.

Children have access to key language and meanings in order to understand and readily apply it to their written, mathematical and verbal communication of their skills.

Children will use a range of resources to develop their knowledge and understanding that is integral their learning and develop their understanding of working scientifically.

Each year group has a clear scheme of work using the White Rose Science Scheme to help us cover all the relevant knowledge and skills across our school. This scheme of work is in line with the National Curriculum where teaching and learning plans for practical investigative opportunities within Science lessons.

Children reflect on previous learning and cross curricular links will be made wherever possible.

Children build on prior knowledge and link ideas together, enabling them to question and become enquiry based learners.

Attainment will be assessed through related topic assessment tasks.

Science in the Early Years Foundation Stage

In The Foundation Stage science is within "Understanding the World".

In this area of learning, children are developing the crucial knowledge, skills and understanding that help them to make sense of the world.

The children are given opportunities to solve problems, make decisions, experiment, predict, plan and question in a variety of contexts, and to explore and find out about their environment, people and places that have significance in their immediate lives.

Impact

We aspire to all children achieving age related expectations in Science at the end of KS1.

Children will retain knowledge that is pertinent to Science with a real life context.

Children will be able to question ideas and reflect on knowledge.

Children will work collaboratively and practically to investigate and experiment.

Children will be able to explain the process they have taken and be able to reason scientifically

Science and SEN

At St Mildred's we believe that all pupils are entitled to a broad, balanced and relevant curriculum and teachers match the learning to the needs and abilities of all of the pupils. We use a range of strategies to develop the pupils' knowledge, understanding and skills. Where appropriate, materials are modified or support is provided to enable pupils with SEND to access the learning. In every lesson there are a range of strategies used to ensure inclusion of all pupils.

These include:

- Adult support
- Quality first teaching to ensure the way lessons are planned and delivered meet the children's needs
- Differentiated levels of challenge
- Parallel activities to ensure children are working towards the same objectives
- Visual aids
- Pre teaching of specific skills prior to the lesson
- Sharing objectives and success criteria visually as well as verbally
- Peer support
- Practical activities

Equal Opportunities and Inclusion

All pupils irrespective of ethnicity, religion, gender or ability are given equal access to the Science curriculum where possible. Able, gifted and talented pupils will be supported through the subject developing analysis, thinking skills and evaluation techniques. Teachers will aim to anticipate sensitivities linked to ethnicity, religion and other differences.

Health and Safety

There are health and safety issues relating to practical science lessons delivered in the classroom, during fieldwork and external visits. We will ensure that all planning takes into consideration the risks associated with science lessons. For any relevant risks or hazards identified, procedures will be put in place to mitigate these. All children are made aware of the risks and precautions they must undertake whilst working during science lessons. The safe use of scientific equipment will be clearly discussed with the child/group of children or class before the lesson begins.

To minimise the risks we will ensure:

- Pupils are taught to use the correct equipment and method for the task.
- Children undertaking potentially risky activities will be under the supervision of an adult.
- Pupils will be supported to consider health and safety issues involved in an activity and encouraged to take responsibility for their own health and safety.
- Risk Assessments will be included in the planning and reviewed annually.
- The Science team will keep staff informed about the latest up to date Health and Safety updates and regulations.

How to help your child at home

1. Be interested

Find out their termly topic and take an interest — find relevant books in the library, look online, do some research, find out something new together about the topic. You can have interesting conversations where you are both learning at the same time.

2. Take a trip

Take a trip to a local area, a zoo or an aquarium. These don't necessarily need to be completely related to what they are learning about at school. Any visit can help their curiosity and engagement with science generally.

3. Make it personal

Find out about famous scientists and research unique and exciting inventions up to and including the present day. Who knows, you may have the next Stephen Hawking or Marie Curie at home!

4. Get hands-on

Look up fun, practical science experiments you can do at home with everyday objects.

For example:

- Ask 'What happens when you mix food colouring in milk?' Then add washing up liquid and watch what happens.
- Why not try making your own mini exploding volcano? Just add bicarbonate of soda, food colouring, wash-up liquid and vinegar. Then stand back and watch the eruption!
- Cooking is also a great opportunity to mix ingredients, add heat and examine changing states.
- Try exploring changing states with ice and water to begin to see those changes that can be reversed and those that can't.

Useful Websites

The National Curriculum for science <https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study>

For video clips and activities <https://www.bbc.com/bitesize/subjects/z6svr82>

The Science Museum for information, games etc. <https://www.sciencemuseum.org.uk/>

National Geographic Kids-design-technology

<https://www.natgeokids.com/uk/>

<https://www.sciencekids.co.nz/>

<http://www.primaryresources.co.uk/science/science.htm>