

# Curriculum Policy

## Science



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# Science Policy

## What is our vision?

Science, at Marus Bridge is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying process skills. Our teachers ensure that all children are exposed to high quality teaching and learning experiences, which allow children to explore their outdoor environment and locality, thus developing their scientific enquiry and investigative skills. They are immersed in scientific vocabulary, which aids children's knowledge and understanding, not only of the topic they are studying, but of the world around them. We intend to provide all children regardless of ethnic origin, gender, class, aptitude or disability, with a broad and balanced science curriculum.

## Curriculum Aims:

- Children develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- They develop an understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.
- Children are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

## How do we achieve this?

- At Marus Bridge teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all children can achieve high standards in science.
- Science is taught consistently, across the school, once a week for two hours and is also discretely taught in many different contexts throughout all areas of the curriculum. For example, through English, i.e. writing a persuasive letter to the government about climate change or the destruction of the rainforests or a biography of a famous scientist's life, etc.
- Our teachers have the professional flexibility to plan from a variety of resources that include the recently purchased Plan Bee scheme of work.
- Our teachers plan engaging lessons using our wide range of quality resources to aid the understanding of conceptual knowledge.
- Our planning provides problem solving opportunities that allow children to find out for themselves. They are encouraged to ask questions and be encouraged to use their scientific skills and research to discover their answers. We celebrate this curiosity in our classrooms.
- Our science curriculum is progressive and as the children move up the school it builds on the learning and skills development of the previous year.
- Working Scientifically skills are embedded into lessons to ensure these are being developed. In addition, these skills are built on and developed throughout children's time at the school. This ensures that they can apply their knowledge of science when using equipment, conducting experiments and explaining concepts.
- A minimum of one practical activity for each topic is expected. All children are expected to be closely involved in both the planning and delivery of these practical sessions.

- Our teachers demonstrate how to use scientific equipment, both effectively and safely.
- Scientific vocabulary is displayed on working walls and underpins every lesson. Key vocabulary is progressive throughout year groups.
- Every opportunity is explored to use our extensive school grounds, all year round, to develop the children's understanding of the world around them.
- Children are offered a wide range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.
- Regular events, such as Science Week or project days, such as Nature Day, allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills. These events often involve families and the wider community.

### Scheme of Work:

Marus Bridge Primary School broadly follows the National Curriculum Scheme of Work. The science skills that need to be covered in each year group are laid out in the school's Curriculum Planning and Assessment Document. The teachers have the professional flexibility to plan from a variety of sources that include the **Plan Bee Scheme of Work**. This can be found in the Science Folder on the shared server along with other resources and Schemes of Work, such as Hamilton Trust. Teachers are able to adapt and modify the schemes to suit their children's interests, current events, their own teaching style, the use of any support staff and the resources available. However, any modification must not overlook any of the scientific skills that are in the Curriculum Planning and Assessment Document.

### Resources:

Scientific resources are housed in the Science and Maths cupboard in the upper juniors. These are organised in boxes – each catalogued - for every topic. If teachers require further resources such as consumables for chemistry or compost, seeds etc for plant study – a requisition can be submitted to the Science Coordinator each half term to enable these to be purchased in plenty of time. In addition, there are a wide range of science non-fiction texts available in the library for use in the classroom. Any larger purchases to support the teaching of science can be requested in the same manner.

### Assessment – How do we assess skills and understanding?

Science topics commonly begin with a knowledge review. This can take the form of a KWL (various styles can be found in the science folder on the shared server). At the end of the topic the children are expected to revisit the KWL and complete the section – What I have Learnt. These are usually completed as a class, are used to support the learning and are pinned to the Science Working Wall for reference during lessons.

In KS2 the children are issued with a Knowledge Review – this is a summary of the topic and its related vocabulary. It provides the children with an overview of what they need to know by the completion of the unit. This provides the children with some knowledge so that they can make an active contribution to what they would like to find out about the current topic.

Teachers use a variety of formative assessments, including precise questioning, to test conceptual knowledge and skills and identify those children with gaps in their learning, ensuring they keep up.

The teachers use Pixl summative assessments either following the completion of the unit or during knowledge review week. These can be found on the Pixl website or in the Science folder in the shared server.

There are **two** assessment points for foundation subjects each year: one in February and one in June. They follow a knowledge review week, where teachers use a variety of diagnostic activities to support their judgments. Suggested activities can be found in the updated Staff Handbook.

Each term the following gradings will be given:

**B2** – Child has a specific SEND which prevents them from meeting the objectives.

**B1** – The child has not met/retained the year group objectives.

**E1** – The child has met/retained the objectives.

**A1** – The child has made outstanding progress towards the outcomes and has done so with a large degree of independence. They show a keen interest in scientific enquiry and ask meaningful, critical questions. They may also make links between their prior knowledge and different scientific topics to contribute to their overall scientific understanding.

This assessment will be shared with parents within their End of Year Report.

## Health and Safety

Children will always be taught and encouraged to consider their own safety and the safety of others. Teachers will provide a safe and secure environment for children to learn. Any experiments or trips or visitors which/who are considered a particular risk will need a Risk Assessment Form to be completed and to consult the Science Co-ordinator prior to the activity.

Pupils will be taught to use scientific equipment safely when using it during practical activities. Class Teachers and Teaching Assistants will check equipment regularly and report any damage, taking defective equipment out of action. A simple risk assessment will be carried out by the teacher for all practical activities. NQTs or new members of staff can consult the Science Co-ordinator for assistance and guidance.

## Inclusion and Safeguarding Considerations

At Marus Bridge we ensure that all our children have the opportunity to gain science knowledge and understanding regardless of gender, race, class, physical or intellectual ability. Our expectations do not limit pupil achievement and assessment does not involve cultural, social, linguistic or gender bias. We aim to teach science in a broad global and historical context, using the widest possible perspective and including the contributions of people of many different backgrounds. We draw examples from other cultures, recognising that simple technology may be superior to complex solutions. We value science as a vehicle for the development of language skills, and we encourage our children to talk constructively about their science experiences. In our teaching, science is closely linked with literacy and mathematics. We recognise the particular importance of first-hand experience for motivating children with learning difficulties. We recognise that science may strongly engage our gifted and talented children, and we aim to challenge and extend them. We exploit

science's special contribution to children's developing creativity; we develop this by asking and encouraging challenging and original questions.

Any external visitors must provide evidence in the office of the Enhanced DBS and they must also be reminded of the importance of not using mobile phones within the school.

### Other Points/Considerations:

The use of trips and visitors to enhance and support the teaching of science are encouraged. These have, in the past, included trips to Jodrell Bank to support the teaching of Earth and Space in Year five and visits from the Science Dome supporting Rocks, Volcanoes and Materials in Years three and four.

### Monitoring and Review:

The Science coordinator will complete 2 audits within each academic year. Children's interviews will be undertaken where the children will be given the opportunity to demonstrate their scientific knowledge and vocabulary. The Science coordinator will also undertake drop in sessions throughout the year to support the teaching of Science. These can take the form of team teaching, assisting with practical sessions, modelling lessons and lessons observations to provide feedback and support. In addition, samples of children's work are taken periodically to monitor progress.

A yearly action plan will be drawn up based on the previous year's audits and actions. This plan will include key areas for improvement, new resources, staff CPD, any changes to the Scheme of Work and the long-term vision for the subject.