

# Curriculum Policy

## Science



# Science Policy

## What is our vision?

Every child at Marus Bridge receives a high-quality science education that provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Our teachers ensure that every child is 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. We immerse our children in scientific vocabulary, which aids their knowledge and understanding not only of the topic they are studying, but also of the world around them. In Early Years, we introduce our children to science through the 'Understanding of the World' area of the EYFS curriculum. Here the children are actively encouraged to explore, problem solve, observe, predict, think, make decisions and talk about 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. At Marus Bridge, we aspire for our children to become the great scientists of the future.

## Curriculum Aims:

### Early Years

#### Educational Programme Understanding the World

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension

### KS1 and KS2

The National Curriculum for science aims to ensure that all pupils:

- 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.](#)

## KS1

Pupils need to be enabled to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them.

- We encourage our children to be curious and ask questions about what they notice.
- We help them to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information.
- We encourage them to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.
- At Marus Bridge the learning about science is conducted using first-hand practical experiences together with appropriate secondary sources, such as books, photographs and videos.

## KS2

At KS2 our pupils are broadening their scientific view of the world around them and developing a deeper understanding of a wide range of scientific ideas.

- We encourage children at Marus Bridge to do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments.
- We help them to develop their own ideas about function, relationships and interactions.
- We encourage them to ask their own questions about what they observe, make their own decisions about which types of scientific enquiry are likely to be the best ways of answering them and to select the most appropriate ways to answer science questions, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information.
- draw conclusions and to increasingly use evidence to justify their ideas.
- ask their own questions about scientific phenomena and use their own scientific knowledge and understanding to explain their ideas.

## How do we achieve this?

- Our teachers create a positive attitude to science learning within their classrooms.
- We have an expectation that all children can achieve high standards in science.
- When planning we aim to provide problem solving opportunities to empower and promote independent learning.
- Prior learning should be completed and assessed before a new topic/concept is taught to inform planning for groups and individual children
- Curiosity in our classroom is celebrated.
- Engaging lessons are planned to use a wide variety of engaging resources.

- At Marus Bridge, we use the **Collins Snap Science** scheme from EYFS through to Year 6 to empower teachers to deliver high quality learning experiences, to create a positive attitude to science learning within their classrooms and reinforce an expectation that all children can achieve high standards in science.
- Snap Science is progressive and builds upon the learning and skills development of prior years.
- Working Walls are used to support the children's learning.
- Scientific vocabulary underpins every lesson.
- We embed Working Scientifically skills into lessons.
- We encourage the use of and explore every opportunity to use our extensive grounds to develop the children's curiosity and understanding of the world around them.
- Trips, visitors and annual Science weeks are used to further develop children's understanding of the world and their surroundings

### Scheme of Work:

Marus Bridge Primary School follows **Collins Snap Science** scheme of work which enables our pupils to engage with the progression of the scientific concepts and skills specified in the National Curriculum for Foundation and Key Stages 1 and 2. The science skills that need to be covered in each year group are laid out in the Key Specification Document for Science. The teachers have the professional flexibility to adapt and modify the scheme 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 Key Specification Document for Science.

### Resources:

A wide variety of 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 prior to 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. Additional resources can be found on the staff/shared server within the science folder. **Snap Science** is an online resource and all teaching staff are issued with an up to date username and password.

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

- Teachers use a short prior learning assessment before each unit of work to inform planning and use pre-teaching if required.
- 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, to inform lesson planning and necessary differentiation.

- Pupil's work is marked in line with the school Feedback Policy. Scientific vocabulary spelling mistakes are to be corrected together other spellings in line with the English marking policy.
- 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 the lessons.
- 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.

## Early Years

In Reception, children are assessed against the Early Learning Goals for 'Understanding the World'.

The ELGs are based on typical child development at the age of 5, so most children are likely to meet the 'expected' level of development. Teachers should use their professional knowledge of the child to decide whether each ELG description best fits the child's learning and development.

### ELG: The Natural World

- Explore the natural world around them, making observations and drawing pictures of animals and plants.
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

## 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 prior to use and report any damage, taking defective equipment out of action, informing the science coordinator.

### **Additional advice on health and safety matters in science**

We have a subscription to CLEAPSS, The Gardiner Building, Brunel Science Park, Kingston Lane, Uxbridge, UB8 3PQ. (*Tel: 01895 251 496 e-mail: science@cleapss.org.uk; website: www.cleapss.org.uk*) for the purpose of obtaining risk assessments and for general advice on health and safety matters in science. Risk assessments for practical activities can be obtained from CLEAPSS. The science coordinator has the log in details. 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. In addition teachers are required to use the progression steps within the B Squared documents to support these children. 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 together with a wide use of the school grounds. 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.