

# Meriden CE Primary School



## Science Policy

<b>Approved by Governing Body: Signature of Chair</b>		<b>Date</b>	May 2022
<b>Review Cycle</b>	Three years	<b>Review Date</b>	May 2025

### Aims

Science at Meriden aims to teach our children the skills, knowledge and understanding they need to question and understand concepts and phenomena that occur in the world around them and equips them with the motivation to seek explanations for these. Children learn the skills required for scientific enquiry and they will begin to appreciate the way in which science will affect their future on a personal, national, and global level.

The objectives of teaching science are to enable children to:

- ask and answer scientific questions;
- plan and carry out scientific investigations, using equipment (including computers);
- know and understand the life processes of living things;
- know and understand the physical processes of materials, electricity, light, sound, and natural forces;
- know about materials and their properties;
- evaluate evidence, and present their conclusions clearly and accurately.

Science contributes to the mission statement of the school in the following ways:

**FRIENDS** - Through working with each other and collaborating to solve problems and carry out practical investigations, pupils will gain valuable experience of working with others. Through inviting parents and other visitors, such as STEM ambassadors, into school to support science events, pupils will be able to work with people from the wider community. Pupils learn about key figures in the history of scientific discoveries, with special consideration made by teachers, when planning, to aim to challenge stereotypes.

**FAITH** – Through marveling at the wonders and natural phenomena that we can experience and witness on Earth and by exploring their own view of themselves as part of the natural world, pupils can explore their spirituality. (E.g. When studying space, pupils may be awed by the size of the universe and their own size relative to this).

**LIFELONG LEARNING** – The enquiry based approach through which science is taught will empower pupils to solve problems and find the answers to their questions. These skills will serve them well as lifelong learners. Pupils will gain knowledge of successful scientists (both by learning about famous, significant figures and through face-to-face interactions with current scientists), who embody a love of learning and a thirst for knowledge.

## Teaching and Learning Style

The school uses a variety of teaching and learning styles in science lessons. Our principal aim is to develop the children's knowledge, skills and understanding. We do this through a mixture of whole-class teaching and individual / group activities. Teachers encourage the children to ask as well as answer scientific questions. The children have the opportunity to use a variety of secondary sources of information, where will enhance learning as well as gaining first hand experiences, for example, the use of books, photographs, graphs, diagrams, models and ICT.

Pupils engage in a wide variety of problem-solving activities. Wherever possible, we link activities to a scientific job, such as investigating healthy eating and diet to the role of a nutritionist, or linking an investigation into the properties of materials to a design engineer.

We recognise that in all classes children have a wide range of scientific abilities, and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways:

- setting tasks which are open-ended and can have a variety of responses;
- setting tasks of increasing difficulty (we do not expect all children to complete all tasks);
- grouping children in mixed ability groups to allow pupils to support each other;
- providing resources of different complexity, matched to the ability of the child;
- using extra adults to support the work of individual children or groups of children;
- asking open-ended, challenging questions to challenge the most able children.

## Science Curriculum Planning

The long-term Science plan maps the scientific topics studied in each term during the key stage. In some cases we combine the scientific study with work in other subject areas; at other times the children study science as a discrete subject. The long-term plan ensures progression in this subject.

Medium term planning is the responsibility of the class teacher. Teacher should use the knowledge matrices and examples of work available on the Science Teams channel to support them in planning their sequence of lessons. The Science subject leader will support teachers with medium term planning and provide advice and resources.

Class teachers should ensure that their weekly timetables, saved on the system in the W drive, reflect two hours of science teaching a week. Sometimes this may be averaged out over the half-term. The weekly timetables should show when science will be taught and what the learning intention will be. The science subject leader monitors the allocation of lesson time given to science by checking the timetables.

## The Foundation Stage

We teach science in the Foundation stage as an integral part of the topic work covered during the year. It comes under Understanding the World in the EYFS. Children must be supported in developing the knowledge, skills and understanding that help them to make sense of the world. Their learning must be supported through offering opportunities for them to use a range of tools safely; encounter creatures, people, plants and objects in their natural environments and in real-life situations; undertake practical 'experiments'; and work with a range of materials.

## **The contribution of science to teaching in other curriculum areas**

### **English**

Science contributes significantly to the teaching of English at Meriden by actively promoting the skills of thinking, reading, writing, speaking and listening. The children develop oral skills in science lessons through discussions and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information.

### **Mathematics**

Science contributes to the teaching of mathematics in a number of ways. The children use weights and measures and learn to use and apply number skills. Through working on investigations, they learn to estimate and predict. They develop the skills of accurate observation and recording of events. They use numbers in many of their answers and conclusions. Data handling provides a way to record scientific evidence.

### **Computing**

Children use computing in science lessons where appropriate. They use it to support their work in science by learning how to find, select, and analyse information on the internet. Children use computers to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

The use of the iPads offers further opportunities to link science with technology. Apps on the iPads such as the Max-See apps to link with the Wi-Fi microscopes and the Slo-Mo function on the camera can significantly aid pupils in scientific tests.

### **Personal, social and health education (PSHE) and citizenship**

Science makes a significant contribution to the teaching of personal, social and health education. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare and healthy eating and exercise. Secondly, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions. Science promotes the concept of positive citizenship.

### **Spiritual, moral, social and cultural development**

Science teaching offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the nature of our world. Science raises many social and moral questions. Through the teaching of science, children have the opportunity to discuss, for example, the effects of pollution and the moral questions involved in this issue. We give them the chance to reflect on the way people care for the planet and how science can contribute to the way we manage the Earth's resources. Science teaches children about the reasons why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people.

## **Teaching Science Inclusively**

We teach science to all children, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education for all children. Through our science teaching, we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels. Our work in science takes into account the targets set in the children's EHCPs and 'My Support' plans, where these are in place.

We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language, and we take all reasonable steps to achieve this.

## **Assessment and Recording**

We assess children's work formatively in science through observations and marking. These assessments inform the class teacher's planning for future lessons. At the start of each unit, key objectives are identified that the pupil's learning will be assessed against. Assessments may take the form of a practical activity, a concept map or a written assessment.

At the end of a unit of work, the class teacher makes a judgment about the children's achievements. Children are assessed against each objective and these judgments are used to make an overall judgment for the term. Pupils are assessed as 'Working Towards', 'Working At' or 'Greater Depth' each term. The teacher records these assessments to inform reports to parents. Reports to parents also allow teachers to indicate whether a pupil is 'Just within' or 'Securely within' the expected level for their age.

## **Resources**

We have a range of resources to support the teaching of Science across the school and all our resources are kept in the science cupboard. The Science subject leader is responsible for monitoring stock and quality of resources.

## **Monitoring and Review**

It is the responsibility of the Science Subject Leader, the Headteacher and Governors to monitor the standards of children's work and the quality of teaching in science. The Science Subject Leader is also responsible for supporting colleagues in the teaching of science, for being informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school. An action plan is written and reviewed termly, with long-term annual objectives in mind. The science subject leader helps with the levelling and moderation of work samples to ensure consistency and calls in books for scrutiny and evidence of progress, with feedback being given to staff. We aim to attend local authority moderation to share ideas and look at how we moderate our science books.