



Dartmoor
MULTI ACADEMY TRUST

Science Curriculum Statement

Our curriculum has four features:

- is ambitious for all pupils;
- is carefully and coherently planned and sequenced;
- is successfully adapted, designed and developed for pupils with special educational needs and/or disabilities;
- is broad and balanced for all pupils

Intent

Science and Engineering are vitally important industries in the modern world. Even if children do not become scientists or engineers they will grow up in a world that requires scientific literacy and critical thinking skills. Science is all around us and helps children to make sense of the world

Through Science, at Milton Abbot we aim to give all our children an understanding of the world around them from the moment they join us as both an entitlement and a pleasure. When children are studying Science at the primary level, they should be acquiring specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes, develop a sense of excitement and curiosity about natural phenomena and also an understanding of the uses and implications of Science, today and for the future. This learning is built on each year.

At Milton Abbot, our children build their expertise of Science in 2 main forms of knowledge. The first is 'substantive knowledge', which is knowledge of the products of science, such as models, laws and theories. The second category is 'disciplinary knowledge', which is knowledge of the practices of science. This teaches pupils how scientific knowledge becomes established and gets revised. Importantly, this involves pupils learning about the many different types of scientific enquiry. It should not be reduced to learning a single scientific method. The knowledge is carefully sequenced to reveal the interplay between substantive and disciplinary knowledge. This ensures that pupils not only know 'the science'; they also know the evidence for it and can use this knowledge to work scientifically.

Implementation

Early Years

Children begin their formal science education in the Early Years Foundation Stage (EYFS). This involves learning foundational knowledge primarily through the 'understanding of the world: the natural world' area of learning which involves a range of observational, practical explorations. This provides a number of rich contexts for pupils to learn a wide range of vocabulary.

Key Stage One and Two

Milton Abbot meets the objectives of the National Curriculum through our own Base Curriculum developed collaboratively by Science Leaders within The Dartmoor Multi Academy Trust. The Base Curriculum provides a structured framework for scientific learning ensuring key topics are regularly revisited. Children are actively encouraged to recall and apply their own knowledge to scientific concepts. As specified by the National Curriculum the Base Curriculum aims to:

- Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- Develop 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.

-Ensure children are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

We operate a two year rolling programme across Key Stage 1 and 2.

Developing Scientific Skills(disciplinary knowledge)

Through the topics within the Base Curriculum, children develop their understanding and application of concepts, methods and processes through six key forms of enquiry. Enquiry is used to gain experience and consolidate knowledge but also to develop pupils working scientifically skills. Our enquiry types are:

-Comparative and Fair Testing.

-Research

-Observation over Time

-Pattern Seeking

-Identifying, grouping and Classifying

-Problem solving

Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding

Building Scientific Vocabulary

The use of scientific language is key to progression and understanding. Children are taught and expected to accurately use age-appropriate scientific vocabulary as they progress to describe scientific ideas.

Assessment

Each unit's learning is set out clearly using Knowledge Organisers that cite key learning objectives and concepts as well as required vocabulary. Formative assessment is used as the main tool for assessing the impact of science at Bradford as it allows for misconceptions and gaps to be addressed immediately rather than building on insecure scientific foundations. It also provides a breadth of assessment methods allowing all children to demonstrate both their knowledge and skills and can take many forms including quizzes, discussions, practical investigations or extended pieces of writing. This happens throughout all units. Children's existing knowledge and understanding of each topic is assessed before a unit. At the end of each unit, children's knowledge and skills will be formally assessed to ensure all objectives have been met.

Impact

The successful approach to the teaching of science at Milton Abbot will result in a relevant, rigorous and inspiring science education. Children will be provided with the foundations needed to understand their world and the wide range of opportunities science affords. They will have gained knowledge and skills in line with the statutory requirements and will be competent to use the appropriate scientific vocabulary. They will be able to use their understanding to solve real-world problems and will be able to articulate their knowledge of key scientific concepts. Children will retain a sense of awe and wonder related to the natural world as well as a love of discovery and understanding and they will understand the importance science continues to have globally. They will be ready to tackle the ambitious curriculum at Key Stage 3 with a view to achieving highly in the three sciences at Key Stage 4 and beyond.