

Intent, Implementation and Impact of Science at Booth Wood Primary School



Introduction

Intent

At Booth Wood, it is our intention to develop in all young people a lifelong curiosity and interest in the sciences. When planning for the science curriculum, we intend for children to have the opportunity, wherever possible, to learn through varied systematic investigations, leading to them being equipped for life to ask and answer scientific questions about the world around them. As children progress through the year groups, they build on their skills in working scientifically, as well as on their scientific knowledge, as they develop greater independence in planning and carrying out fair and comparative tests to answer a range of scientific questions. Each unit of work has an accompanying knowledge map which is used to help reinforce the key knowledge for each unit as set out in the science national curriculum. These maps help children to consolidate and retain the science knowledge they have learnt and reinforce key scientific vocabulary from each unit. The Science scheme of work ensures that children have a varied, progressive, and well-mapped-out science curriculum that provides the opportunity for progression across the full breadth of the science national curriculum for KS1 and KS2.

Implementation

The acquisition of key scientific knowledge is an integral part of our science lessons. Linked knowledge maps enable children to learn and retain the important, useful and powerful vocabulary and knowledge contained within each unit. The progression of skills for working scientifically are developed through the year groups and scientific enquiry skills are of key importance within lessons. The progression of these skills is set out in the Science Progression Map. Each lesson has a clear focus. Scientific knowledge and enquiry skills are developed with increasing depth and challenge as children move through the year groups. They complete investigations and hands-on activities while gaining the scientific knowledge for each unit. Interwoven into the teaching sequence are key assessment questions. These allow teachers to assess children's levels of understanding at various points in the lesson. They also enable opportunities to recap concepts where necessary. The sequence of lessons helps to embed scientific knowledge and skills, with each lesson building on previous learning. There is also the opportunity to regularly review and evaluate children's understanding. Activities are effectively differentiated so that all children have an appropriate level of support and challenge. Our detailed lesson plans include adult guidance to ensure that teachers are equipped with secure scientific subject knowledge, enabling them to deliver high-quality teaching and learning opportunities while making them aware of possible scientific misconceptions.

Teaching and Learning

At Booth Wood we follow the Twinkl Science scheme of work.

At Booth Wood teaching and learning in science is underpinned by our Science Principles. These principles will be reviewed annually in consultation with our whole school community. Our principles encourage pupils to recognise the power of explanation and develop a sense of excitement and curiosity about natural phenomena. Pupils are also encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes. We seek to spark imagination, fuel curiosity and nurture our young scientists.

The nature, processes and methods of science

Working scientifically specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. The notes and guidance give examples of how 'working scientifically' might be embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. This type of scientific enquiry includes: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data.

Spoken Language

The National Curriculum for science reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and articulating scientific concepts clearly and precisely. They must be assisted in making their thinking clear, both to themselves and others, and teachers ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions. All classes have science technical vocabulary displayed. This is spoken used by all learners.

Impact

Progress is measured through a child's ability to know more, remember more, and explain more. This can be measured in different ways in our units. The use of key questions ensures opportunities are built into the lesson for ongoing assessment. Whole-school and parental engagement has been improved through the shared use of knowledge maps. Children who feel confident in their science knowledge and enquiry skills become excited about science, show that they are actively curious to learn more and will see the relevance of what they learn in science lessons to real-life situations and also the importance of science in the realworld.

At Booth Wood assessment is a process which is undertaken throughout a unit of study as pupils demonstrate their knowledge, skill and understanding required. Focused end of unit tasks which summarize learning ensure all pupils are given suitable opportunities to demonstrate their knowledge and understanding. Also, the children complete a topic quiz at the beginning and end of each unit. This shows how much knowledge and understanding the children have gained.

Monitoring and Evaluation

The subject leader is responsible for monitoring the quality of education in science. This is achieved through lesson observations, pupil discussions, book scrutiny and CPD. Data is analysed at the end of each academic year and a subject report is written. All these things inform the next year's action planning.