

The importance of Science

“A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world’s future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.” (The 2014 Primary National Curriculum in England, Science, page 144)

Aims

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

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

(The 2014 Primary National Curriculum in England, Science, page 144)

Delivery: scheme of work	Science lessons are delivered by class teachers weekly following the Hamilton Trust scheme and recorded on the school weekly overview. In EYFS pupils will cover the Science objectives in the EYFS curriculum through a range of planned and child led learning opportunities.
Time allocation	KS1 – 1:30 weekly; KS2 – 2:00 weekly
Subject evidence	Each unit recorded in books, on paper or on display
Assessment	Assessment for learning during lessons Teacher assessment recorded on online assessment tracking system termly
Reporting	Teacher reports progress face to face during parent teacher meetings and in a written report
Tracking and monitoring	Subject leader completes book/work scrutiny, planning checks and collects pupil voice termly to ensure high quality progressive teaching and learning is consistent across the school
Vocabulary	Key vocabulary is identified in our Science vocab spine and explicitly taught within lessons. Pupils use their knowledge organisers to support retrieval.

Scientific Knowledge and Conceptual Understanding

The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils

make progress, it is also vitally important that they develop a secure understanding of each key block of knowledge and concepts in order to progress to the next stage. Insecure, superficial understanding will not allow genuine progression: pupils may struggle at key points of transition (such as between primary and secondary school), build up serious misconceptions, and/or have significant difficulties in understanding higher order content.

Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary. They should also apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data. The social and economic implications of science are important but, generally, they are taught most appropriately within the wider school curriculum: teachers will wish to use different contexts to maximise their pupils' engagement with and motivation to study science.

(The 2014 Primary National Curriculum in England, Science, page 144)

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. These types of scientific enquiry should include: 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. 'Working scientifically' will be developed further at key stages 3 and 4, once pupils have built up sufficient understanding of science to engage meaningfully in more sophisticated discussion of experimental design and control. (The 2014 Primary National Curriculum in England, Science, page 144)

Planning and Evaluation

Planning is completed as a shared process between the teachers in each group. It is each teacher's responsibility to ensure that all objectives and working scientifically skills are being taught both thoroughly and regularly as part of their good practice and quality first teaching and learning over time. To help ensure coverage, teachers use the DILS planning overview template. The Hamilton Trust scheme of learning is to be followed to support development of knowledge.

At the start of each unit, a knowledge organiser is stuck into the children's book which shows the objectives, vocabulary and working scientifically skills in a child friendly language.

Resources

Resources in Science can be found in the resources cupboards

Outdoor areas

CLEAPSS for risk assessment

Hamilton Trust

Any requests for new resources should be passed to the Science subject leader.