

## Science Policy

September 2022 update

### **National Curriculum Purpose of study and Aims:**

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 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.

<b>Intent</b>	<p>At Abbey Meads, we aim to make science a relevant, exciting and 'hands on' subject, stimulating children's innate curiosity about natural phenomena and events in the world around them. We foster the children's enjoyment of exploration, discussion and investigation by encouraging questioning and wonder and by providing opportunities for different types of practical investigations and links to their experiences in the real world. We aim to foster concern about, and active care for, our environment and provide our children with an enjoyable experience of science, so that they will develop a deep and lasting interest and may be motivated to study science further. Our curriculum covers basic scientific knowledge within and between topics sufficiently and builds on this so that children progress in their understanding of how science can be used to explain what is occurring, predict how things will behave, and analyse causes. We aim to enable our children to become effective communicators of scientific ideas, facts and data, using scientific vocabulary confidently. Our teaching aims to help equip children with the scientific knowledge required to understand the uses and implications of science today and for the future as these impact on industry, medicine, business and improve the quality of their lives and others.</p> <p>We aim to foster an enjoyment of science and develop our children's understanding of the international and collaborative nature of science by taking part in activities during National Science and Engineering Week and by forging links with secondary schools. We encourage trips and visits from experts who will enhance their learning experience (such as STEM Ambassadors, ESERO-UK Space Ambassadors, opticians and dental experts). Our curriculum aims to prepare children for potential careers in STEM in some of the many businesses we have links with in Swindon, such as the Research Councils and Intel.</p>
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<b>Implementation</b>	<b>Scheme of work</b>
<b>Implementation</b>	In ensuring high standards of teaching and learning in science, we implement a curriculum that is progressive throughout the whole school and provides exciting, hands on and practical experiences for all children. Science is taught through the specific disciplines of biology, chemistry and physics, following 'The National Curriculum programmes of study for Science 2014' and 'Understanding the World' in the Early Years Foundation Stage.
<b>Implementation</b>	<b>Planning</b>

	<p>Teachers use the National Curriculum to plan each unit of work. They break the curriculum statements down into objectives for lessons on a medium term plan. This plan outlines how objectives will be taught and how they will be adapted to ensure all learners can access and achieve.</p>
	<p><b>Teaching</b></p> <p>Practical work lies at the heart of primary science at Abbey Meads. We use a 'hands-on' approach to promote curiosity and engagement. One way this is delivered is through the embedded teaching of 'Focus for TAPS'. By identifying a focus for 'Working Scientifically', all children are provided with a practical opportunity to 'plan, do and review' a series of tasks. This, combined with other science lessons means children have many opportunities for discussion and questioning to develop their understanding. It also promotes cooperation and collaboration.</p> <p>Children learn to use a variety of approaches to answer relevant scientific questions, including observing over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and researching using secondary sources. We encourage questioning and wonder. Children are encouraged to ask open-ended questions, such as 'What if...?' or 'I wonder what would happen ...' and investigate these. They are also encouraged to ask about new and unknown vocabulary. New vocabulary is explicitly taught throughout each unit. Teachers display and support children with this technical vocabulary through a range of means, including knowledge organisers, displays and word mats.</p>
	<p><b>Assessment</b></p> <p>TAPs activities are used to teach and assess working scientifically skills on a termly basis. Teachers carry out ongoing formative assessment as part of lessons to help guide lessons and plan next steps for children. Teachers also carry out summative assessments using the school assessment documents. These highlight children who have met the expected standard and those that are above or below this level.</p>
	<p><b>Cross curricular</b></p> <p>Science is linked to class topics and other curriculum areas. For example, through English, (writing an account of the water cycle); in DT (making an electrical circuit for a model); in maths (using data and graphs) or computing (using data loggers). Teachers strive to make links across the curriculum to extend and reinforce the children's learning.</p>
	<p><b>Home - School learning</b></p> <p>Units of work are shared with parents on topic webs on a termly basis and these are also shared on the school website. House cup competitions sometimes have a science focus and these are projects that are shared between home and school. Family learning events, held throughout the year, sometimes have a science focus.</p>
	<p><b>Monitoring</b></p> <p>The subject leaders monitors the subject across the school. They follow the school monitoring schedule to evaluate the effectiveness of teaching and learning in science.</p> <p>Across the year, pupil voice, planning audits, book looks and learning walks will take place and the outcomes of this work are fed back to SLT and staff as appropriate. Where necessary, further monitoring and support will take place outside of the planned work.</p> <p>End of unit assessments, end of key stage data and TAPS activities are looked at by the coordinator to monitor the level of attainment and this is used to ensure planning meets the needs of the children.</p>
<p>↳</p>	<p>Pupil/Parent/Staff voice</p>

Through discussion and feedback, children talk enthusiastically about their science lessons and speak about how they love learning. They can articulate how science can relate to real life situations. Children show confidence and believe they can learn about a new science area and apply the knowledge and skills they already have.

Children use science vocabulary in discussions and activities.

Children understand how science links to other areas of the curriculum and talk about examples of this.

Good attendance at family learning events and parents feel happy to talk to staff about their children's learning in science.

All staff feel confident in science subject knowledge.

#### Data

Data shows that school standards are high across the school and at the end of each Key Stage. Attainment in science at the end of Key Stage 1 and Key Stage 2 is at least in line with national expectations.

#### Book looks

Book looks reveal a high standard of children's work with evidence of their learning shown in science books and examples of practical tasks recorded in floor books.

Use of feedback and marking adheres to policy and moves learning forward.

#### Planning audits

All planning meets the requirements of the NC, whilst ensuring the relevance of what they learn in relation to real world concepts.

Planning ensures appropriate coverage of knowledge, skills and vocabulary.

TAPS activities are planned in across the year.

#### Learning walks

Children are engaged in their learning and show enthusiasm for science.

Vocabulary is a central part of lessons.