



Birches First School

Believe, Grow, Succeed



Science

Intent

The 2014 National Curriculum for Science aims to ensure that all children:

- 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 skills required to understand the uses and implications of Science, today and for the future. We understand that it is important for lessons to have a skills-based focus, and that the knowledge can be taught through this

At Birches First, we encourage children to be inquisitive throughout their time at the school and beyond. The Science curriculum fosters a healthy curiosity in children about our universe and promotes respect for the living and non-living. We believe Science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills. We ensure that the Working Scientifically skills are built-on and developed throughout children's time at the school so that they can apply their knowledge of Science when using equipment, conducting experiments, building arguments and explaining concepts confidently and continue to ask questions and be curious about their surroundings. Children will leave Birches with a curious mind, eager to continue to explore and understand the world of STEM learning.

Implementation

Teachers create a positive attitude to Science learning within their classrooms and reinforce an expectation that all children are capable of achieving high standards in Science. Our whole school approach to the teaching and learning of Science involves the following;

- Science will be planned and taught weekly or in arranged topic 'blocks' by the class teacher, following a project-based approach. This is a strategy to enable the achievement of a greater depth of knowledge. Planning grids are used to identify curriculum objectives as well as key assessment opportunities. Ogden Trust planning documents are used to support planning for progression, support for higher and lower attainers, opportunities for practical application and cross curricular links.

- Through our planning, we involve problem solving opportunities that allow children to find out for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess children regularly to identify those children with gaps in learning, so that all children keep up. Children are encouraged to assess their own learning alongside the teacher.
- We build upon the learning and skill development of the previous years. Elicitation tasks are carried out at the start of each unit to identify starting points and next steps. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence.
- Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.
- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.
- Assessment is supported with assessment sheets/'I can statements' for each topic as well as ASL documents.
- Children are offered a wide range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum e.g Pendeford Nature Reserve, Jackfield Tile Museum, ThinkTank. These are purposeful and link with the knowledge being taught in class.
- Regular events, such as Science/STEM day or Sparkle days, allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills. These events often involve families and the wider community.
- Our engagement with the local environment ensures that children learn through varied and first hand experiences of the world around them. Opportunities for progressive learning outside the classroom are encouraged throughout the Science curriculum allowing the children to learn in, as well as about the world around them.
- Children learn about the possibilities for careers in Science and we seek opportunities for community links; enabling children to learn from and work with professionals, ensuring

that children have access to positive role models within the field of Science from the immediate and wider local community.

Science, fundamental British Values and SMSC

British Values – Pupils will begin to develop an understanding of the different uses of science and some of the ethical issues surrounding this. As they explore and learn, pupils will develop tolerance and respect for the world in which they live.

SMSC - Pupils have the opportunity to ask meaningful questions to extend their understanding about how science works and the world they live within; to use and apply their learning purposefully and creatively; reflect on the impact of science in the wider world, and how science can be used to explore beliefs and new experiences in a modern society. Pupils will explore concepts of right and wrong when planning an investigation to ensure equipment is used safely, respectfully and lawfully. Pupils will effectively communicate and collaborate with others: sharing ideas, data and results for further enquiry, whilst appreciating the diverse views of others. Pupils will recognise and appreciate that scientific development arises from the diverse world around them. It is also becoming increasingly important that pupils develop an awareness of the impact of quickly developing cultures around the world on our environment.

Impact

The successful approach at Birches First results in a fun, engaging, high-quality Science education that provides children with the foundations and knowledge for understanding the world.

Children at Birches First School see themselves as scientists, capable of achieving and overwhelmingly enjoy Science and this results in motivated learners with sound scientific understanding.

A significant number of children are judged as at least expected against Age Related Expectations.