



St Ambrose Barlow Catholic Primary School Science Statement of Intent, Implementation and Impact

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.'

Intent

Science teaching at St Ambrose Barlow Catholic Primary School aims to give all children a strong understanding of the world around them whilst acquiring specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes and also an understanding of the uses and implications of Science, today and for the future. At St Ambrose Barlow Catholic Primary School, scientific enquiry skills and knowledge are embedded using the model of spacing and interleaving. This ensures that children are revisiting, recapping and reconsolidating their knowledge throughout the year, as well as throughout the rest of the school. Each topic is revisited at regular intervals, with children being able to dive deeper and explore further with each visit. This model allows children to build upon their prior knowledge and increases their enthusiasm for the topics whilst embedding this procedural knowledge into the long-term memory. It aims to create a sense of excitement and curiosity around science, and develop learners who are able to question, investigate and come to their own conclusions about the world around them. All children are encouraged to develop and use a range of skills including observing, predicting, setting up tests and drawing conclusions, as well as being encouraged to question the world around them and become independent learners in exploring possible answers for their scientific based questions. Specialist vocabulary for topics is taught, built up and revisited, and effective questioning to communicate ideas is encouraged. Concepts taught should be reinforced by focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. A broad, balanced Science curriculum is designed to be provided for all children, regardless of their gender, ethnic origin or ability, ensuring all children leave the school with the science capital, enquiry skills and practical ability needed to support them on their journey into and through secondary school and beyond.

Implementation

To ensure high standards of teaching and learning in Science, we have implemented a curriculum that is progressive throughout the school, and is in line with 'The National Curriculum Programmes of Study for Science 2014.' Annual planning overviews have been created for each year group to ensure that all programmes of study are met and that topics are revisited frequently by using the spacing and interleaving model. Over the course of study, teaching is designed to help learners to remember in the long term the content they have been taught and to integrate new knowledge into larger concepts. Scientific enquiry is built into each topic to ensure that children are getting hands on,

practical experiences, where they are able to think and work like scientists. Each year group studies Science weekly for an extended lesson. This allows children to dive deeply into their topics on a regular basis. Links to Science are also made in other subjects across the curriculum, including Comprehension, Literacy and Geography. Mathematical and computing skills are also built upon during Science lessons. Excellent subject knowledge from teaching staff, along with a rich variety of resources ensure that children have the opportunities to be prepared for a life in an increasingly scientific and technological world. We help our children to acquire a growing understanding of nature and our environment, giving them a deeper understanding of some of the challenges facing our planet, and equipping them with the knowledge and skills to be able to make informed choices and make decisions which will impact on our future. Science teaching aims to develop a range transferable skills including asking questions, making predictions, setting up tests, observing and measuring, recording data, interpreting and communicating results and evaluating. To build excitement and enthusiasm around the subject, we provide a range of enrichment activities. Each year we take part in National Science Week, as well as a Science Day which involves engaging and exciting practical activities. We also have close links with our local Secondary Schools and our older children have taken part in Science workshops organised and run by them.

Impact

At St Ambrose Barlow Catholic Primary School, we have developed a robust and thorough system of formative assessment which is completed by all class teachers each lesson to track children's progress and ensure that gaps in knowledge can be addressed and plugged. Children are given weekly low-stakes retention activities and quizzes so misconceptions can be identified and specific close-the-gap activities can be given to help children to consolidate their learning. This system measures children's attainment against the programmes of study in the 2014 National Curriculum, but also tracks their ability to work scientifically and apply practical skills. A careful progression of skills and knowledge has been built so that Science learning builds year on year, with children consolidating and deepening their skills as they move through the school. Smooth transitions can be made between year groups and a consistent approach is used. As well as ensuring that children acquire the appropriate age-related knowledge linked to the Science curriculum, our curriculum also ensures that children are equipped with transferable skills that will support them in their everyday lives and across other curriculum subjects. These skills include:

- Developing a richer vocabulary which will enable children to articulate their understanding of taught concepts.
- Problem solving and reasoning skills: the ability to tackle problems with confidence and independence, developing their own questions and finding ways to answer them.
- Children will develop a better understanding of our world and our environment and will be able to make informed decisions about how they treat our world.

Through the development of these essential transferable skills, we seek to give children high aspirations, which will see them through to further study, work and a successful adult life