

Bolton Primary School

Science Policy



1. Curriculum Statement

Intent

The 2014 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 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.

Through science, pupils at Bolton Primary School will continue to deepen their respect, care and appreciation for the natural world and all its phenomena. 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 key stage, 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.

Implementation

A specialist science teacher (and lead teacher for science) delivers our science curriculum throughout the school. This helps to ensure that children build on their knowledge and skills as they progress through the school. The science teacher also teaches Science at another primary school in the cluster which helps them compare a greater number of pupils when assessing. The science teacher creates a positive attitude to science learning within their classrooms

and reinforces an expectation that all pupils 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 taught in planned and arranged topic blocks. The National curriculum objectives are grouped into topics and adapted and extended for Bolton Primary School. Each topic is taught in: Early Years, Class 1, Class 2 and Class 3 at the same time to: ensure progression, coverage, allow resources to be evaluated and to provide the opportunity for whole-school trips or topic days. Families with children in more than one class can also visit places out of school, get library books etc that appropriately support the science topic for all of their children.
- Home-based activities are available for the topic being taught on the school website.
- Through our planning, we involve problem solving opportunities that allow children to apply their knowledge, and find out answers 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 pupils regularly to identify those children with gaps in learning, so that all pupils keep up.
- We build upon the knowledge and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient at: planning investigations (making predictions, selecting equipment, method-writing, controlling variables), recording results in tables and graphs, drawing conclusions, evaluating evidence and evaluating, conducting research and understanding key concepts.
- 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. The key knowledge and skills of each science topic is informed by the PLAN scheme which is available on our website.

Teachers model how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. New vocabulary

and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics. The teacher has access to a developing central store of high-quality resources shared with another primary school in our cluster.

Teachers ask a range of questions, which enable all children to take part, listening carefully to answers and taking learning forward, using open and closed questions and allowing children time to think. Teachers find opportunities to develop children's understanding by accessing outdoor learning.

We adapt and extend the curriculum to match the unique circumstances of our school.

- Events, such as project days provide a broader provision encouraging the acquisition and application of knowledge and skills. These are purposeful, linking with the knowledge being taught in class and where appropriate involve the wider community.

Impact

The approach at Bolton Primary School results in a fun, engaging, high-quality science education that provides children with the foundations and knowledge for understanding the world. Our engagement with the local environment ensures that children learn through varied and first-hand experiences of the world around them. Through various workshops, trips and interactions, children have the understanding that science has changed our lives and that it is vital to the world's future. Children learn the possibilities for careers in science, from a range of different scientists from various backgrounds, allowing all children to feel they are scientists and capable of achieving.

2. Early Years Foundation Stage

We teach science to Reception children as an integral part of the topic work covered during the year and in a weekly lesson. As the reception pupils are part of the Early Years Foundation Stage of the National Curriculum, we relate the scientific aspects of the children's work to the objectives set out in the Early Learning Goals (ELGs) which underpin the curriculum planning for children aged three to five. Science makes a significant contribution to the objective in the ELGs of developing a child's knowledge and understanding of the world, e.g. through investigating what floats and what sinks when placed in water.

3. The contribution of science to teaching in other curriculum areas

English

Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. Some of the texts that the children study in Literacy are of a scientific nature. The children develop oral skills in science lessons through discussions (for example by evaluating different sources of energy) and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information.

Mathematics

Science contributes to the teaching of mathematics in a number of ways. The children use weights and measures and learn to use and apply number. Through working on investigations they learn to estimate and predict. They develop the skills of accurate observation and recording of results. They use numbers in many of their answers and conclusions. They may be required to draw or complete graphs/ data charts and tables.

Information and communication technology (ICT)

Children use ICT in science lessons where appropriate. They use it to support their work in science by learning how to find, select, and analyse information on the Internet. Children use ICT to record, present and interpret data and to review, modify and evaluate their work and improve its presentation. They also may use e-mail to communicate their findings with other children in other schools and countries. Light, temperature and volume data loggers, digital cameras, digital microscopes, digital thermometers and timers are also used regularly.

Personal, social and health education (PSHE) and citizenship

Science makes a significant contribution to the teaching of personal, social and health education. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. For example, children study the way people recycle material and how environments are changed for better or worse. Secondly, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions. They organise campaigns on matters of concern to them, such as promoting areas for wildlife. Science promotes the concept of positive citizenship and studies topics such as healthy eating, drugs, alcohol.

Spiritual, moral, social and cultural development

Science teaching offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the nature of our world. Science raises many social and moral questions. Through the teaching of science, children have the opportunity to discuss, for example, the effects of smoking and the moral questions involved in this issue. We give them the chance to reflect on the way people care for the planet and how science can contribute to the way we manage the earth's resources. Science teaches children about the reasons why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people.

4. Equal opportunities in science

- We ensure that all our children have the opportunity to gain science knowledge and understanding regardless of gender, race, class, physical or intellectual ability.
- Our expectations do not limit pupil achievement and assessment does not involve cultural, social, linguistic or gender bias.
- We aim to teach science in a broad global and historical context, using the widest possible perspective and including the contributions of people of many different backgrounds.
- We draw examples from other cultures, recognising that simple technology may be superior to complex solutions.
- We value science as a vehicle for the development of language skills, and we encourage our children to talk constructively about their science experiences.

Children with SEND:

At Bolton Primary School we teach science to all children, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our science teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs.

Intervention through School Support will lead to the creation of a Support Plan for children with special educational needs or those requiring Intervention. The support plan may include, as appropriate, specific targets relating to science.

We enable pupils to have access to the full range of activities involved in learning science. Where children are to participate in activities outside the classroom, for example, a trip to a science museum, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

5. Assessment and recording in science

Assessment for learning is continuous throughout the planning, teaching and learning cycle.

- Formative assessment is used to guide the progress of individual pupils in Science. It involves identifying each child's progress in each area of the Science curriculum, determining what each child has learnt and what therefore should be the next stage in his/her learning. Teachers in the course of their teaching usually carry out formative assessment informally. Suitable tasks include:
 - o Small group discussions, usually in the context of a practical task.
 - o Specific arrangements for particular pupils.
 - o Individual discussions in which children are encouraged to approve their own work and progress.
- A whole school summative assessment system (*Green box tracking*) allows for the following of children's progression in science. This occurs through the use of Head Start 'End of Topic' assessments or the teacher's own assessments. Teachers use the data to plan and teach the appropriate next steps for each child.
- The school science leader monitors progress through school and the data is available for all teachers to view on Teams.
- Reports to parents are provided 3 times a year. A short report in autumn and summer and a longer written report in Spring.

6. Resources

We continue to develop our teaching resources for all areas of science taught in the school. In addition to the science resources owned by the school, we have access to a collection of science equipment from schools in our cluster and local secondary schools.

7. Monitoring and review

It is the responsibility of the science subject leader, the headteacher and the governor responsible for science to monitor the standards of children's work and the quality of teaching in science. The science subject leader is also responsible for being informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school.

Approved Spring 2024 by

Bronwen Maxwell

Signed:

Date of review spring 2026

Chair of Governors - Bronwen Maxwell

The current governor with responsibility for Science is Bronwen Maxwell

Subject Co-ordinator: Heather Lowthian (Since September 2019)