

Science at St Bartholomew's C.E. (VC) Primary School

'Nurture, Grow, Flourish'



Science teaching at St Bartholomew's C.E. Primary School aims to give all children a strong understanding of the world around them whilst acquiring specific skills and knowledge to enable them to think scientifically, gain an understanding of scientific processes and also the understanding of the uses and implications of science today and for the future. Our Science curriculum is based on our school vision, values and curriculum intent.

The teaching of science follows the National Curriculum and is taught discretely as part of a broad and balanced curriculum. Emphasis is placed on both the acquiring of knowledge and the development of the key scientific skills. A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics.

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.

We ensure that all children are provided with rich learning experiences that aim to provide them with:

- The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings.
- Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations.
- Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings.
- High levels of originality, imagination or innovation in the application of skills.
- The ability to undertake practical work in a variety of contexts, including fieldwork.
- A passion for science and its application in past, present and future technologies

Early Years Foundation Stage and Preschool

At St Bartholomew's C.E. Primary School, the children love learning about their environment right from Preschool and the Early Years Foundation Stage. They begin by looking at their school environment and noticing patterns and changes. They begin to make observations of animals and plants and discuss why changes occur. They will develop an understanding of living things, growth and change over time. Additionally, they will begin to identify properties of materials and suggest some of the purposes they are used for.

Key Stage 1

The main focus of science teaching in Key Stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. We aim to encourage the children to be curious and ask questions about what they notice. They will be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests and finding things out using secondary sources of information. They will be taught to begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning



about Science will be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos. The children will be taught the skills to 'work scientifically' throughout the Science curriculum and this will include:

- Posing question;
- Making predictions;
- Planning investigations;
- Observing and measuring;
- Using different methods to collect and present data;
- Starting to discuss the importance of fair testing;
- Drawing conclusions and answering questions.

Lower Key Stage 2 (Year 3 and 4)

The main focus of science teaching in lower Key Stage 2 is to enable the children to broaden their scientific view of the world around them. They do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple fair tests and finding things out using secondary sources of information. They draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

The children will continue to develop their confidence and skills in 'working scientifically' and opportunities for this are built into the Science curriculum.

Upper Key Stage 2 (Years 5 and 6)

The main focus of science teaching in upper Key Stage 2 is to enable the children to develop a deeper understanding of a wide range of scientific ideas. They do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper Key Stage 2, they encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They also begin to recognise that scientific ideas change and develop over time. They will be taught to select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out fair tests and finding things out using a wide range of secondary sources of information. The children will be taught to draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

The children will continue to develop their confidence and skills in 'working scientifically' and opportunities for this are built into the Science curriculum.

Impact

At St Bartholomew's C.E. Primary School, children will develop a love of Science and an eagerness to observe and question the world. Children will be equipped with the knowledge and skills to enable them to contribute positively to their community. The children will acquire Scientific knowledge and will be able to communicate their ideas and knowledge using



appropriate scientific language. As they progress through the school, they will become confident in using a variety of scientific investigations to learn about our world and answer questions. They will be able to use graphs and tables to record their results, reaching scientific conclusions and discussing ways in which their investigation could be improved.

Inclusion

We aim for all children to be able to access the Science curriculum and that we adapt our teaching and the curriculum to meet the needs of our pupils.

We teach Science to all children, whatever their ability or individual needs. 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 strive to meet the needs of pupils with special educational needs, disabilities, English as an additional language and those demonstrating special gifts and talents. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels. We use a range of strategies to support pupils. A few of these, particularly relevant to Science are:

- The use of appropriate vocabulary at varying levels of difficulty during lessons;
- Modified text passages as expected in other curriculum areas;
- Different levels of written or oral questions for pupils investigating photographic or other visual material;
- Careful use of support for pupils with English as an additional language;
- Use of adapted resources and equipment;
- Alternative ways or scaffolded ways of recording;
- Setting common tasks which are open-ended and can have a variety of responses;
- Adaptions to meet the individual needs of pupils that may cause barriers to learning.

Christian Distinctiveness

The study of Science involves a sense of curiosity and questioning about the world around us. Science gives us the opportunity to reflect on the awe and wonder of God's creation. We aim to develop the knowledge and scientific skills of our children in order for them to understand, value and be inquisitive about the natural world around them. Our curriculum integrates our Christian values of love, respect, and thankfulness, as children develop their scientific knowledge and conceptual understanding in science. It helps us to appreciate and respect the wonderful creation that God has given to us.

"The scientist is not the person who gives the right answers; they are the ones who ask the right questions." - **Claude Levi-Strauss**

"Science knows no country, because knowledge belongs to humanity, and is the torch which illuminates the world." - **Louis Pasteur**