Science at Burton Joyce Primary School

At Burton Joyce our aim is to inspire children to be curious and independent in their exploration of the world around them. Following the National Curriculum, we aim to inspire the children to take a positive approach to thinking scientifically by delivering a practical based curriculum to understand the nature, processes and methods of science. Exploring different types of enquiry will help our children to; answer scientific questions about the world around them; develop scientific knowledge and conceptual understanding through specific disciplines of biology, chemistry and physics; and equip them with the scientific knowledge required to understand the uses and applications of science, today and for the future.

Curriculum design and sequencing of content

Our curriculum is designed to sustain pupils' natural curiosity so that they are eager to learn the subject and embed the knowledge of the big ideas in science. Science lessons are taught discreetly in a sequence of weekly lessons throughout the phase. Each phase covers the curriculum over a two-year cycle with strong links made between maths and English where possible. As the children progress through the phases of our school, they are led through the twelve elements of our science curriculum building on prior understanding to extend and deepen their scientific knowledge.

The sequence of learning is carefully planned to focus on the key features of scientific enquiry so that pupils learn to use a variety of approaches to answer relevant scientific questions which will prepare them for the future learning in other years and phases. We develop the knowledge and skills throughout all year groups and show progression through high quality teaching and learning of science on a weekly basis. Each lesson will begin with a question to seek answers through collecting, analysing and presenting data. Our aim is to equip ALL children with an independence to think scientifically, carry out investigations and to develop a confidence to use their learning in the classroom to widen their understanding by asking further questions. The teaching and resources used within the lesson will support the children to confidentially answer the questions posed at the start of each lesson.

Knowledge and understanding

All lessons will focus on three main areas: knowledge and understanding of scientific concepts, a knowledge and understanding of working scientifically and a development of key vocabulary. A knowledge organiser is consistently used across all topic areas, year groups and phases within school to provide the children with key concepts and vocabulary covered within each science unit. Providing the children with the correct scientific vocabulary will support the children to use scientific language in their explanations, to make meaningful conversations using the correct vocabulary and when writing scientifically. Throughout the topic, the knowledge organisers will be used to remind, reinforce and quiz the children's understanding of the key concept of each unit. These units build on prior learning and progress through the phrases. At Burton Joyce, we believe that regularly reviewing the key concepts and vocabulary will help children to make strong links and ensure that the knowledge and understanding is embedded and retained.

Lens

The scientific lens has been designed to enable our children to start thinking and working scientifically by discovering for themselves through trial and error. Children asking questions, sharing ideas and able to explain what they are finding using scientific vocabulary, are all important skills for us at Burton Joyce. Using the scientific lens, we will equip our children with the ability to achieve a deeper understanding of the six key areas.

The six key areas are:

- Asking questions and providing a hypothesis - Asking relevant questions and recognising that, by using different types of scientific enquiries, they can be answered in different ways.
- Making observations and taking measurements – using careful observations on what is happening and identifying and using equipment to support taking measurements.
- Engaging in practical enquiry – performing, setting up and planning comparative and fair tests to support answering questions.
- Recording and presenting evidence – gathering, identifying and classifying key data and recording in a variety of different ways.
- Concluding results - using their observations and scientific evidence to make suggestions, answer questions and support or refute ideas
- Evaluating and raising further questions – using conclusions to suggest and explain improvements to raise further questions and include causal relationships and degree of trust in results.

When planning and teaching science topics, we ensure that at least one of six key areas is developed each lesson. Our planning format is designed to show the coverage of each skill over the course of the unit, year and phase. Progression throughout the skills is developed from questioning and comparing to testing and evaluating. This will ensure children can build on prior learning from previous phases and lessons can be developed with a view towards future learning.

Community Connections/our local area

At Burton Joyce, making links with the world around us is important to create purposeful and meaningful learning experiences. Throughout our science units we make links across other curriculum areas through exploring significant people and their contributions to science, apply taught skills from their maths and English lessons through collecting, recording and analysing concepts across biology, chemistry and physics and exploring the biology of living things through our SRE units. Making links enable our children to understand and embed all learning.

Equally, it is importance that the children are engaged, excited and involved in working practically in science and continue that enthusiasm outside the classroom. At Burton Joyce, we recognise the importance of the community around us and national science awareness events to bring purpose to our learning and recognise future jobs connected to Science. As a result, we set termly science activities in our homework menus and work in conjunction with the British Science Week, in March, to set home challenges to encourage our children to be enthusiastic about their learning in the home environment. We have developed strong links over the years with the science team at our secondary feeder school and work collaboratively with the science ambassadors to bring science into the classroom or to share science experiences within their classrooms. We are also very fortunate at Burton Joyce to have local landmarks, such as the River Trent, Colwick lagoon and the local grove within a short distance from our school. These natural areas around us are a useful tool to take the learning of science outside of the classroom.