Science

Aims and purposes

We recognise the importance of Science in everyday life and promote its main aim which is to find new knowledge. We believe that scientific concepts are essential for predicting, hypothesising, explaining and asking questions. We recognise that for children to be able to work scientifically, they need to know and understand an increasingly sophisticated set of key ideas about evidence, what to gather, how to gather and how to analyse.
Our aim is 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.
All children are encouraged to develop and use a range of skills including observations, planning and investigations, as well as being encouraged to question the world around them and become independent learners in exploring possible answers for their scientific based questions. Concepts taught should be reinforced by focusing on the key features of 'working scientifically', so that pupils learn to use a variety of approaches to answer relevant scientific questions.

The National Curriculum provides a structure of which key ideas have been drawn from and have been arranged in a way that shows how they are related to each other and how one idea builds upon another. These key ideas are used to formulate enquiries and investigations. We believe that developing ideas through enquiry and applying ideas whilst enquiring is the most powerful way of making understanding, deep and meaningful. These key ideas will enable all pupils to:

- be equipped with the scientific knowledge required to understand the uses and implications of Science, today and for the future.
- develop the essential scientific enquiry skills to deepen their scientific knowledge.
- Use a range of methods to communicate their scientific information and present it in a systematic, scientific manner, including I.C.T, diagrams, graphs and charts.
- Develop a respect for the materials and equipment they handle with regard to their own, and other children's safety.
- Develop an enthusiasm and enjoyment of scientific learning and discovery.

As a school we base our science learning within a broad and balanced curriculum and strive to deliver an exciting and enlightening learning experience for our children, maximising the opportunities in our local environment. We use a range of scientific resources to meet the needs of the curriculum.
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. Through our well planned science curriculum, the children will acquire and develop the key knowledge .We ensure that the Working Scientifically skills are woven through and built-on 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.

Teaching, learning and planning

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 taught in planned and arranged topic focus by the class teacher and a long term plan is in place to cater for our vertically grouped classes. This ensures that all pupils cover the entire science curriculum.
- 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 and using appropriate 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.
- We build upon the learning and skill development of the previous years. As the children's knowledge and understanding increases through their understanding of the key ideas, 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. This is a strategy to enable the achievement of a greater depth of knowledge.
- Working Scientifically skills are embedded into lessons where appropriate, to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching.
- Science is monitored by the subject leader throughout the year in the form of peer learning, work sampling and discussion with both teachers and pupils.
- An annual Science and Engineering week is a chance to celebrate the areas of Science, Technology, Engineering and Maths, featuring engaging and exciting activities and visitors. This is enhanced through the use of information and ideas from national agencies such as the STEM association.
- Teachers demonstrate how to use scientific equipment carefully and safely
- The introduction of Forest Friday for the Early Years and Key Stage 1 children, has provided opportunities to develop children's understanding of their surroundings by accessing outdoor learning and a chance for children to manage their own risk in a well planned and safe environment.
- Children are offered a range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.

Assessment

Teachers assess pupil's knowledge, understanding and skills in Science against the understanding and application of the Key ideas which are divided into 9 areas of Animals, Plants, Evolution, Materials, Forces, Electricity, Light, Sound and Earth and Space. Pupils are assessed every time they learn something important and their progress is tracked. Teachers will mark pupils work and encourage a response by asking challenging questions to clarify understanding or tracking each pupil's self- assessment.

Pupil voice is used to further develop the Science curriculum and assess pupil's views and attitudes, through pupil interviews. Children are given the opportunity to discuss their learning and understanding and the impact of the teaching can be established. This aims to support the children's enjoyment of science and to motivate learners.

Our Science Curriculum is well planned to demonstrate progression using the key ideas. If children are keeping up with the curriculum, they are deemed to be making good or better progress.