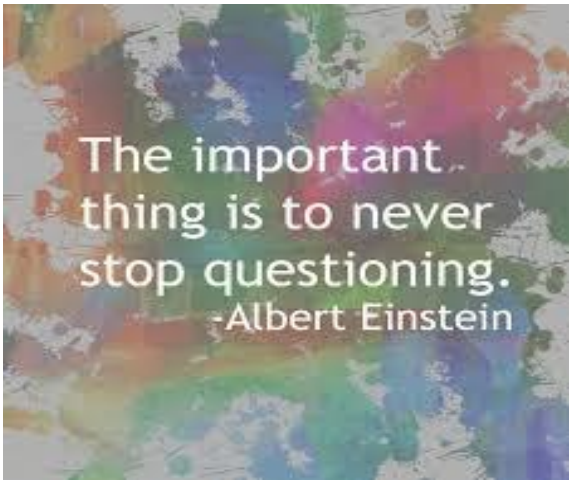
Science Curriculum

Intent, Implementation and Impact



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

At Fortuna Primary School we aim 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 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.

Through a hands-on, enquiry-based curriculum which promotes questioning, challenge, working practically, investigating, evaluating, making choices, working independently and using scientific vocabulary, we aim to create fun and stimulating science lessons that nurture children's natural curiosity and their on-going development.

Implementation

Teachers create a positive attitude to science learning within their classrooms and reinforce 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 where possible will be planned and taught through the text focus set out in the Literacy Long Term Plan by the class teacher, if the science does not have a natural link to the topic then science will be taught discretely.
- Existing knowledge is checked at the beginning of each new science scheme of work, as part of the KWL strategy (What I know, What I would like to Know and What I have Learned). This ensures that the children's starting points inform teaching and that it takes account of pupil voice, incorporating children's interests.
- 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 the science co-ordinator mapping out a sequence of lessons that the teachers then use as a basis to create 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. Tasks are selected and designed to provide appropriate challenge to all learners.
- We build upon the knowledge and skill development of the previous years. As the children's knowledge and understanding increases, 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.
- The science is planned over a two-year cycle in KS1, LKS2 and UKS2 to ensure progression and coverage.
- Working Scientifically skills are embedded into science schemes of work to ensure that skills are systematically developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. (See Scientific Enquiry Skill and Vocabulary Provision Map)
- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.
- Children are offered a wide 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.
- Regular events, such as Science Week or project days, allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills.
- At the end of each topic, key knowledge is reviewed by the children and rigorously checked by the teacher and consolidated as necessary.

IMPACT

The successful approach at Fortuna Primary School results in a fun, engaging high-quality science education, which provides children with the foundations and knowledge for understanding the world through varied and first-hand experiences.

Our pupils not only acquire the appropriate age related knowledge linked to the science curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives.

All children have:

- A wide variety of skills linked to both scientific knowledge and understanding, and scientific enquiry/investigative skills.
- A rich vocabulary that will enable them to articulate their understanding of taught concepts.
- The belief that they are scientists and capable of achieving anything they set their mind to.
- Children overwhelmingly enjoy science and this results in motivated learners with sound scientific understanding.

The Science coordinator monitors student progress throughout the year. Teacher Assessment through classroom monitor is utilised to address misconceptions in learning and to target intervention to improve individual outcomes and monitor progress. It also informs targeted CPD for staff and effective budgeting towards science resources.

The Science Co-ordinator also follows a monitoring timetable that includes:

- *Book looks*
- *Learning walks*
- *Planning sampling*
- *Soft monitoring e.g. chatting in staff room*
- *Data gathering*
- *Teacher discussion*
- *Pupil interviews/ Pupil voice*
- *Blinks/ Drop ins*