

Newbridge Learning Community Science

Intent

Our 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 required can be taught through this.

At Newbridge, we encourage children to be inquisitive, pose questions and make hypothesis. 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. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, 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, plan investigations, conducting experiments, building arguments and explaining concepts confidently.

Implementation

Teachers engage students and create a positive attitude to science learning within their classrooms. They reinforce an expectation that all children can achieve high standards in science. Our whole school approach to the teaching and learning of science involves the following;

- Science will be arranged and taught in planned topic blocks by the class teacher, to have a practical-based approach. This is a strategy to enable the achievement of a greater depth of engagement and promote learning.
- 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, 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 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, and 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.
- 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.
- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings.
- 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 Focus Weeks allow all pupils to come off timetable, to provide broader provision and the acquisition and application of knowledge and skills.

At Newbridge we are developing the Mastery Science system which is designed to help pupils use a research-based approach which has been shown to increase achievement. The belief behind mastery learning is that all students are not 'more' or 'less able' but instead some take longer to understand or need a different approach.

There are five components of mastery learning which have been found to be effective:

1. **Teach** towards clearly defined mastery objectives
2. Then give students **Review** activities based on what they did not master
3. At the same time, provide challenging **Extend** activities for students who did master
4. **Re-assess / Re-question** to give students another chance to show mastery

While Key stage three and four remain separate. With a three-year key stage 3, Key stage four builds upon the work delivered in years 7, 8 and 9. Using the blueprint for 5-year plan.

Impact

The successful approach at Newbridge 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. Children at Newbridge overwhelmingly enjoy science and this results in motivated

learners with sound scientific understanding. Pupils are aware throughout the delivery of science in both key stages the links to Careers and opportunities. This includes work on actual job roles and what they entail.