

Knowledge is ‘food for thought’

This science curriculum has been co-designed by primary senior and subject leaders from primary, first and middle schools within the Trust.

Our Primary Science Curriculum purpose and aims:

The curriculum has been designed around key concepts with clear end points that build year on year. Visits and visitors have been included to give pupils further experiences in science.

By using engaging questions, strong lesson plans, and frameworks that connect science to the real world, we aim to create a thirst for inquiry, exploration, and a passion for science through our curriculum.

Based on the Science Curriculum Improvement Study (SCIS) Atkin-Karplus Learning Cycle – Explore, Invent, Discover – in 1987, the Biological Sciences Curriculum Study (BSCS) team wanted to expand and deepen the concepts when developing their own instructional model. The result was the 5E Instructional Model; a learning method that has shaped science learning around the world for over thirty years.

What is the 5E Model?

It is a five-phase approach to teaching science concepts which supports our desired emphasis on the practical/real life aspect of science to enable pupils to gain deep knowledge and science skills.

Phase 1 – Engagement

Children should be engaged. Capture their interest and curiosity and have them focus on the task, object, situation, problem or event at hand. Link to previous learning and address any misconceptions. Children should be fizzing with puzzlement, intrigue, and motivation to find answers.

Phase 2 - Exploration

Finding answers requires exploration and it is important that exploration is concrete – physical and hands on. This reinforces engagement and encourages children to experiment. explore the concepts and skills before forming questions that can be investigated. Children should ask questions at all stages of their education, finding awe and wonder in the world around them. They should have opportunities for self-discovery and finding out how things work practically.

Phase 3 – Explanation

Focus on providing explanations of what has been observed, planting seeds of understanding and developing scientific thinking skills. Give children the chance to look at, explore and answer big questions and subsequent questions which arise. Language richness and tier 3 vocabulary is vital and should be embedded throughout, repeated from years 1 – 6 to ensure accurate vocabulary is secure. Sentence stems to encourage scientific thinking are included in the curriculum document.

Phase 4 - Elaboration

Pupils should transfer their understanding of new science concepts and skills to new contexts or experiences. Cross-curricula learning is useful here, connecting scientific understanding with mathematics, art, technology and so on, can deepen understanding.

Phase 5 – Evaluation

This phase can be brought into the mix at any time in the learning process. Evaluation includes both pupils and teachers gauging the level of conceptual and procedural understanding gained.

Case studies of famous and less common scientists from different cultures and areas of expertise should be studied, opening the children’s eyes to the world beyond school and the many careers on offer to them linked to science. Studying scientific discoveries also allows children to see the impact science has on the world and how it is ever changing – where would we be if ____ hadn’t been discovered? It is intended that one such study should occur in each year group