

Curriculum Intent - Science

Science (from the Latin word *scientia*, meaning "knowledge") is a systematic enterprise that builds and organises knowledge in the form of testable explanations and predictions about the universe.

The science curriculum has been designed to provide students with a deep understanding of the scientific knowledge and ideas that impact them as individuals within a local and globalised context. As they move through the curriculum, students will be increasingly made to develop their curiosity, provide insight into working scientifically and appreciate the value of science in their everyday lives. Our curriculum provides a platform for more advanced science based study, providing a gateway into a wide range of career opportunities. It also delivers a framework for understanding the natural world and supporting students to become scientifically literate participants in society.

After consideration of the Education Endowment Foundation (EEF) report 'Improving Secondary Science' in 2018 and recent research developments in science curriculum design, a full review of the curriculum was undertaken, establishing a number of key principles.

E.D. Hirsch argues "only a well-rounded, knowledge-specific curriculum can impart needed knowledge to all children and overcome inequality of opportunity". This is something supported by the Department for Education (DfE) who write that the curriculum should emphasise that knowledge should be something "to be remembered and constantly built upon, not merely encountered and fleetingly experienced" (DfE, 2018: 5).

The key principles used when designing the new curriculum were:

- To develop a knowledge rich curriculum, supported by high quality teacher instruction, collaborative learning and the opportunity for students to demonstrate understanding.
- Effective use of models to explain concepts and critical evaluation of these models.
- Development, understanding and use of scientific language and commonalities in language between other curriculum areas.
- The sequence of learning, including prior knowledge and next steps.
- Retrieval of information over time.
- Reduction of a topic/end of term test, more frequent 'low stakes' checkpoints that feedback in to classroom planning.
- Links to other subjects as well as local and social context.

The intent was to create an overarching narrative for our curriculum strands. The rationale was to allow students to understand 'what they are learning, why they are learning this now, what does this build on and where does it lead'. This curriculum narrative was the basis to our 11 strand approach:

Willingham wrote 'The human mind seems exquisitely tuned to understand and remember stories – so much so that psychologists sometimes refer to stories as 'psychologically privileged', in that stories are treated differently in the memory compared with other types of material' (2018).

Myatt identifies three necessary stages in producing successful student outcomes through cognitive science: 'we need to find the stories in the curriculum, we need to think about how we ensure that information moves from the short-term into the long-term memory and we need to provide opportunities for pupils to revisit the key concepts' (2018).