

Implementation



The implementation of the United Curriculum for Science reflects our broader teaching and learning principles, found [here](#):

For Science in particular:

- Content is always carefully situated within existing schemas. Every unit considers the prior knowledge that is prerequisite for that unit and builds on that knowledge to develop a deeper understanding of that concept.
- Vertical concepts are used within lessons to connect aspects of learning. For example, in Year 1 pupils learn that different objects have a specific purpose, in Year 2 they learn that objects are made from different materials because these materials have different properties which make them suitable for a different purpose and in Year 4 they learn that some of the properties of different materials can be classified as chemical or physical.
- Disciplinary knowledge is explicitly taught to pupils and carefully sequenced to ensure pupils are provided with opportunities to practice these skills throughout the curriculum.
- Sustainability forms an integral part of the science and geography curriculum. An appreciation and understanding of key aspects of sustainability are carefully sequenced and interweaved for the most part through science and geography lessons.
- Opportunities for extended, scholarly writing appear throughout the curriculum. These have a clear purpose and audience and, crucially, allow pupils to write as a scientist. For example, in Year 4 pupils write a letter to an elderly relative to explain the solutions that exist to help with hearing loss.



The careful sequencing of the curriculum – and how concepts are gradually built over time – is the progression model. If pupils are keeping up with the curriculum, they are making progress. Formative assessment is prioritised and is focused on whether pupils are keeping up with the curriculum.

In general, this is done through:

- Questioning in lessons. Teachers check understanding so they can fill gaps and address misconceptions as required.
- Pupil conferencing with books. Subject leads and SLT talk to pupils about what they have learnt – both substantive and disciplinary knowledge – and how this connects to the vertical concepts that they have been developing in previous years and other subjects. **For example, in Year 6 pupils may be asked to talk about how combustion links to habitat loss of the polar bear.**
- Post-learning quizzes at the end of each unit. These give teachers an understanding of the knowledge that pupils can recall at the end of the unit, and can be used to identify any remaining gaps to be filled. **These are generally recall questions, such as identifying the symbols used for electrical components used in a circuit or identifying different animal features.**
- Pre-learning quizzes at the start of each unit. These assess pupils' understanding of the prior knowledge that is required to access the new content in the unit. These are used to identify gaps to be filled prior to teaching the new unit. **For example, in a unit about magnetism pupils will need to recall that a force can be a push or a pull and that forces act in particular directions. This knowledge is assessed in the Pre-Learning Quiz, and teachers can plan to fill any identified gaps.**