

Rationale for our Science Curriculum

Why has the specific content/ domain knowledge been selected?

The core knowledge has been chosen to aid children's understanding of the of Science in Physics, Chemistry, Biology and Earth Science and has been taken from the National Curriculum. Threads of Working Scientifically have also been selected as an integral part of delivering subject content. Disciplinary Knowledge include observing over time, pattern seeking, identifying and classifying, comparative testing, fair testing and research. Across a term/year, pupils learn subject content in different ways to develop Working Scientifically. Scientific vocabulary is taught explicitly to allow all learners equal access to lessons.

Why is it taught in the order that it is?

We introduce substantive knowledge as ideas through looking at and challenging common age-appropriate misconceptions. Core knowledge is taught in a progressive way throughout Key Stages 1 and 2, with many content domains being re-visited, allowing pupils to retrieve knowledge they have previously learned and build on this to gain a deeper understanding of the topic and grapple with more complex ideas, as well as make their own predictions based on their existing scientific understanding. The disciplinary knowledge is taught according to the age and ability in mathematics and is progressive from Year 1 to Year 6.

How are Science lessons delivered at Heygarth?

All lessons start with an opportunity to revisit prior learning as part of Assessment for Learning. We use PLAN Assessment materials to support with planning. All lesson plans include a relevant scientist, prior learning, future learning and key vocabulary. Teachers create a positive attitude to science learning within their classrooms and 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:

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 and pupils are encouraged to 'wonder' and question.

Teachers use 'Thinking out loud' for precise prompts for deeper thinking and questioning in class to test conceptual knowledge and skills.

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. Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding.

What is the impact?

Children 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. By the end of Key Stage 2, children have: A wider variety of skills linked to both scientific knowledge and understanding, and scientific enquiry/investigative skills.

A richer vocabulary which will enable to articulate their understanding of taught concepts. High aspirations, which will see them through to further study, work and a successful adult life.