Intent, Implementation and Impact

Our skills-based progression, which starts in EYFS, allows for teachers to have clear end goals, build on what has been taught previously and ensure complete coverage of the curriculum. The acquisition of key scientific knowledge is an integral part of our science lessons. Substantive knowledge has been organised around a set of key concepts, which are revisited as pupils progress through school (see progression document). The progression of skills for Working Scientifically are developed through the year groups and scientific enquiry skills are of key importance within lessons. Where possible, links are made with other subjects and to the wider world to enrich learning and encourage the development of Science Capital.

At Hagley Primary, teachers create a positive attitude to Science learning within their classrooms, reinforcing an expectation that all children are capable of achieving high standards in Science.

Our whole school approach to the teaching and learning of Science involves the following:

- Science will be taught in units by class teachers. Our strategy is to enable all children to be catered for through adapted planning suited to their abilities.
- We plan for problem solving and real-life opportunities that enable children to find out for themselves. Children are encouraged to ask their own questions and are given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom.
- Planning involves teachers creating practical, engaging lessons with opportunities for precise questioning in class to test conceptual knowledge and skills, and assess children regularly to identify those children with gaps in learning.
- Our curriculum is progressive. We build upon the learning and skill development of the previous years, which is tested through low-stake quizzes, questioning and tests, where teachers can identify misconceptions that need addressing and as a tool for formative and summative assessment.

Skills involved in the 'Working Scientifically' strand of the curriculum 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 line with each unit. Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding.

Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts. As the pupil'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. Through enrichment experiences, such as STEM week/day, STEM workshops, careers fairs, trips and visitors, we promote the profile of Science and allow time for the children to further explore scientific topics.

Across the year, we explore different aspects of scientific enquiry and build pupils' skills and disciplinary knowledge in each aspect as they progress through school.

- Observing over time: observing or measuring how one variable changes over time.

- Identifying and classifying: identifying and naming materials/living things and making observations or carrying out tests to organise them into groups.

- Looking for patterns: making observations or carrying out surveys of variables that cannot be easily controlled and looking for relationships between two sets of data.

- Comparative and fair testing: observing or measuring the effect of changing one variable when controlling others.

- Answering questions using secondary sources of evidence: answering questions using data or information that they have not collected first hand.

- Using models: developing or evaluating a model or analogy that represents a scientific idea, phenomenon, or process.

The successful approach to the teaching of science at Hagley Primary School results in a fun, engaging, high-quality Science education, that provides children with the foundations for understanding the world that they can take with them once they complete their primary education.

Pupils learn the possibilities for careers in Science and other STEM subjects throughout the school and explore key influential scientists from a range of backgrounds to support the idea of 'A Scientist Like Me'. To further develop the Science curriculum, pupil voice is used through questioning of pupils' views and attitudes towards Science, to assess the children's enjoyment of science, and to motivate learners.

By the end of their primary school education, pupils will:

- have an understanding of the key domains of knowledge and can use key concepts to make links between domains
- ask questions and make observations about the world around them using scientific knowledge
- analyse data and articulate evidenced conclusions
- follow and design scientific enquiries
- have an understanding of some of the major issues facing our planet and an appreciation of the importance of science to wider society.