

How we teach science at High Littleton Primary School

Science is a core area that is taught weekly. We have high quality resources that are teacher led and organised by the Science Lead. Marking and feedback is in line with the school's marking policy and provided as a class, individually and where possible in the lesson.

EYFS

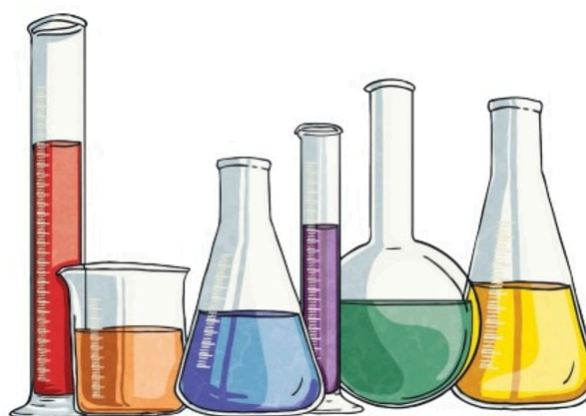
Science in Early Years is very exploratory and language rich. Children are actively encouraged to talk about how things change over time and why. Books and visual aids are provided to develop understanding of natural changes. Children are encouraged to observe each stage of changes during experiments/activities and are provided with a rich vocabulary in order to discuss scientific threshold concepts. They are taught the vocabulary around *plants environments animals materials seasonal changes* that builds into Year 1 concepts.

Forest School plans for exploration of the natural world, looking for similarities and differences, habitats and spotting changes in the seasons. Children are asked to explain findings, and explain why things occur and how changes happen. Within the provision, toys and resources linked to threshold concepts in science support the observation skills e.g magnifying glasses, rocks, shells, and loose parts. Songs enrich their Scientific vocabulary and children contribute to large displays to embed their learning eg Parts of a Flower

How we organise and sequence our Science learning

Key Strands:

- Scientific **knowledge and understanding** of:
 - biology: living organisms and vital processes;
 - chemistry: matter and its properties;
 - physics: how the world we live in 'works'.
- **Working scientifically**: processes and methods of science to answer questions about the world around us.
- **Science in action**: uses and implications of science in the past, present and for the future



Science at High Littleton School is a **spiral curriculum**, with essential knowledge and skills revisited with increasing complexity, allowing pupils to revise and build on their previous learning. A range of engaging recall activities promotes frequent pupil reflection on prior learning, ensuring new learning is approached with confidence. The Science in action strand is interwoven throughout the scheme to make the concepts and skills relevant to pupils and inspiring for future application. Cross-curricular links are included throughout each unit, allowing pupils to make connections and apply their science skills to other areas of learning.

Each unit is based on one of the key science disciplines: **biology, chemistry and physics**. The National curriculum content has been grouped into **six key areas of science to show progression throughout the school**:

Plants.

Animals, including humans.
Living things and habitats.
Materials.
Energy.
Forces, Earth and space.

Pupils explore **knowledge and conceptual understanding** through engaging activities and an introduction to relevant, specialist vocabulary.

Working scientifically skills are integrated with conceptual understanding rather than taught discretely (as suggested in Ofsted research review: science, April 2021), to provide frequent but relevant opportunities for developing scientific enquiry skills. The scheme utilises practical activities that aid in the progression of individual skills and provide opportunities for full investigations. These skills are:

Posing questions.
Planning.
Predicting.
Observing (qualitative data).
Measuring (quantitative data).
Researching.
Recording (diagrams).
Recording (tables).
Graphing.
Analysing and drawing conclusions.
Evaluating.

We aim that children build confidence in talking about different **types of enquiry** and by the end of Key Stage 2 are able to choose the most suitable enquiry for answering their questions.

Researching using secondary resources; Observing over time; Comparative and fair testing; Identifying, classifying and grouping; Pattern Seeking.

In Term 6, prior knowledge and skills are assimilated and explored beyond the National Curriculum through a unit called '**making connections**' .

Structure of a Lesson

We use a variety of **teaching strategies**, from independent tasks to paired and group work, including practical, creative, computer-based and collaborative tasks. This variety means that lessons are engaging and appeal to those with different learning styles.

Adaptations are made available to ensure that all pupils can access the lessons and opportunities are provided to stretch learning.

Knowledge organisers for each unit help to identify key learning and vocabulary and can be useful as an adaptive teaching tool or to revise learning from the unit.

We believe strong **subject knowledge** is vital for staff to deliver a highly effective and robust science curriculum. Within our curriculum there are teacher videos and resources to develop subject knowledge, target fundamental misconceptions effectively and support ongoing CPD.

Assessment

The impact of our curriculum is constantly monitored through both formative and summative assessment opportunities.

Each lesson includes assessment of pupils' understanding against the learning objectives and any relevant scientific enquiry skills.

Furthermore, each unit has a **unit quiz** and a **knowledge and skills catcher**, which can be used at the beginning and/or end of the unit to provide a summative assessment.

Opportunities for children to communicate using scientific **vocabulary** also forms part of the assessment process in each unit.

In order to check understanding and embed learning we continue to use formative assessment models used throughout the school such as:

Mini-whiteboards

Low stake quizzes before and after lessons

Discussion prompts

High quality questioning at regular intervals

At the end of each term, teachers complete a class assessment document to record the progress of each pupil based on both the summative and formative assessments throughout the term.

The Science Lead monitors the impact and progression of Science across the school by talking to staff on a regular basis, conducting pupil conferencing, looking at books and observing lessons. These form an annual Action Plan for the teaching and learning of Science.

Useful documentation to support implementation: [Kapow's National curriculum coverage](#) document shows which of the units cover each of the National curriculum attainment targets and the strands within them. [Kapow's Progression of skills and knowledge](#) shows the skills and key knowledge taught within each year group and how these skills develop year on year to ensure attainment targets are securely met by the end of the key stage.