

Hempshill Hall Primary School



Science Policy

Sept 2025

Introduction

“Science is fun, science is curiosity. We all have natural curiosity. Science is the process of investigating. It’s posing questions and coming up with a method. It’s delving in.” Sally Ride (Nasa Astronaut and Physicist)

Children are naturally curious. Science at primary school should nurture this curiosity and allow children to ask questions and develop the skills they need to answer those questions. At Hempshill Hall we recognise the importance of science in every aspect of daily life. We believe it is our responsibility to enable children to investigate problems, learn how the world works and discover why science matters. As children progress through the science curriculum at Hempshill Hall, they will have the opportunity to develop their understanding of concepts related to Biology, Chemistry and Physics, and also learn how to ask questions, and formulate ways of finding out their own answers.

As one of the core subjects taught in primary schools, we give the teaching and learning of science the prominence it requires. Our aim is to equip our children with the key working scientifically skills, knowledge and vocabulary motivated by our core skills of active learning, basic skills and creative thinking.

Intent, Implementation, Impact

Intent

The national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

Our science curriculum also incorporates the following:

- A progression of knowledge and understanding from Foundation to Year 6 following the expectations of the Early Years Framework and The National Curriculum 2014.
- A route for children to become fluent in the basic concepts of science.
- Development of scientific understanding and the ability to recall and apply knowledge rapidly.
- Reasoning and problem solving skills by applying scientific methods to a variety of increasingly complex problems.
- An understanding of how science explains and influences the real world.
- An enjoyment of science.

Implementation

- The school uses in-house developed topic plans, written by a science specialist to ensure full topic coverage and progression.
- In every lesson, all children follow a consistent approach to learning.
- All children are challenged appropriately throughout the lesson.
- Children are encouraged to explore, apply and evaluate their scientific approach during investigations to develop an understanding of how to apply the scientific methods of problem solving
- A love of science is encouraged throughout school via links with other subjects, applying a growing range of skills with growing independence.
- Children are assessed through formative assessment methods to check for understanding and attainment.

Impact

- Most children are reaching the end of year expectations in terms of attainment and progress.
- Children are demonstrating a good understanding of facts and concepts.
- Children are developing and refining their scientific enquiry skills through well planned sequences of learning.
- Children are able to explain their observations using scientific language.
- Children are confident in using scientific vocabulary.
- Children are enjoying science and look forward to their lessons.

National Curriculum aims

We aim to develop lively, enquiring minds encouraging pupils to become self-motivated, confident and capable in order to solve problems that will become an integral part of their future.

Foundation Stage –

Science is taught through Understanding of the world.

Statutory ELG: The natural world

- Explore the natural world around them, making observations and drawing pictures of animals and plants.
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter

Foundation stage children will have the opportunity to explore the natural world through their continuous provision, making links to the real world and the understanding how things work around them. They will have tailored, short burst input sessions to focus on a current learning topic, including ones that will have a Science driven focus.

Key stage 1

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.

Key stage 1 - Working scientifically

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

Lower Key stage 2

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

Lower Key stage 2 – working scientifically

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

Upper Key stage 2

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

Upper Key stage 2 – working scientifically

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary

- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments

Our Curriculum

The aim of science teaching here at Hempshill Hall Primary School is to inspire in pupils a curiosity and fascination about the world around them. As well as the factual knowledge learnt through biology, chemistry and physics, children are taught key skills for working scientifically skills (asking questions, measuring and recording data using equipment such as rulers and thermometers). These skills are for life and as such will enhance children's awareness of the world around them and give them the confidence to explore that world. Our curriculum is taken from the National Curriculum which aims to teach the skills and knowledge referred to above, allowing pupils to deepen their understanding of the world around them.

Long term planning

- The National Curriculum for Science 2014, Early Years Framework, Primary Science teaching Trust, ASE and STEM Learning influence and inform the long-term planning for science taught in school.
- The science subject overview maps the coverage of the science curriculum from Foundation to Year 6.
- The children's understanding and knowledge of working scientifically will be broadened through the teaching of the following key skills.
 - Asking questions
 - Making predictions
 - Observing and Measuring
 - Recording data using tables, drawings and charts
 - Interpreting results
 - Making conclusions/evaluating what they have found

Medium term planning

- Children from Foundation to Year 6 use in-house developed schemes of learning as their medium-term planning documents. Schemes of learning are made electronically available to all teachers via a shared drive.
- Schemes of learning provide teachers with outline methods to meet learning objectives and are broken down into knowledge, skills and enquiry methods which are key aims of the National Curriculum. They support a balanced and varied approach to teaching and learning.
- EYFS planning is based on FS2 medium term plans and delivered as appropriate to individual classes.
- Knowledge-rich subject organisers have been developed to enable children to access the key points of learning for each subject.

Short term planning

- The above schemes of learning support individual lesson planning. Lessons are planned using a common format and are monitored at intervals by the science subject leader. Teachers of the EYFS ensure the children learn through a mixture of adult-led activities and continuous provision both inside and outside of the classroom.

Teaching Methods

All teaching follows the approach outlined in our whole school Teaching and Learning Protocol document. The emphasis in lessons is to make teaching interactive and lively, to engage all children and encourage them to talk about science. There is a focus on the Big Questions of science and children have opportunities to explore concepts through theory and practical activities.

Foundation lessons follow a revisit / teach / practise / apply model. Focus is placed on repetition to embed key skills and children are taught through visual, auditory and kinaesthetic approaches to learning. Learning is continued through continuous provision where children can access resources and activities tailored to their age group.

All lessons (KS1 and KS2) involve elements of:

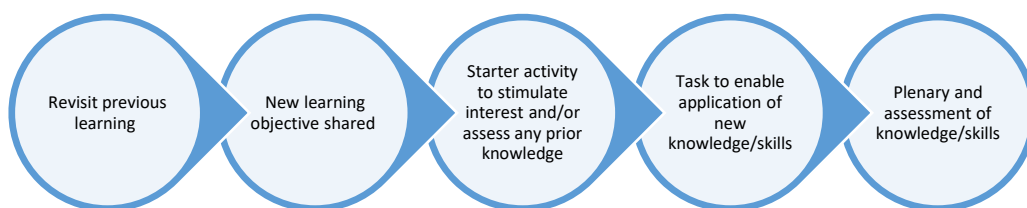
- Prior learning reminders
- Anchor task (opportunities to activate prior knowledge, ask questions and contextualise the science that is to be learnt during the lesson)
- Lesson Objective (including a simplified NC LO)
- Teaching, including introduction of new concepts, asking questions
- Independent investigation through practical activities or research
- Plenary

Resources to support practical enquiries are kept in cupboards according to the strand of science they fall under (Biology, Chemistry, Physics) and are regularly updated.

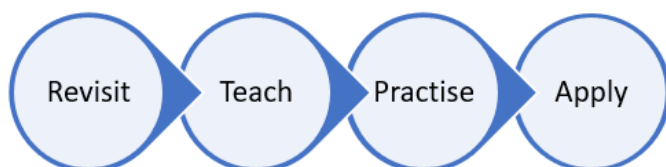
National Science Week is an opportunity to raise the profile of science throughout the school, we aim to increase engagement and enjoyment of science. The children will be able to showcase their own learning and investigate the science learning in other year groups.

All science lessons follow a consistent teaching sequence that allows the students to reflect on previous learning. Students then build on this through new knowledge and concepts which they can apply and embed in a meaningful way, while looking forward to where this learning will take them next.

All lessons are delivered using the following sequence:



Foundation lessons follow the below approach:



Special educational needs & disabilities (SEND)

Science forms part of the school's curriculum policy to provide a broad and balanced education to all children. Our science lessons are inclusive and provide learning opportunities that are adapted to meet the needs of children. Children working in the Hub follow an appropriate curriculum that teaches them scientific concepts that are meaningful to them.

Science and future careers

Qualifications in science lead to a broad and diverse set of career options within the disciplines of Biology, Chemistry and Physics. There are an enormous range of employment routes to choose from, for example:

Oceanographer, nurse, physiotherapist, ecologist, marine biologist, chemical engineer, palaeontologist, radiographer, genetic engineer, astronomer, surgeon, pharmacist, volcanologist and many more!

Assessment

Assessment is on-going throughout the learning process and includes observing children at work, questioning, class discussions, quizzes, thinking squares, marking and written and verbal feedback.

Thinking Squares, consisting of three focused questions are used at the beginning of each taught unit to assess existing knowledge. At the end of each unit, children again complete Thinking Squares to assess retention of key knowledge. Furthermore, children answer an additional concept question, providing the opportunity to demonstrate the application of knowledge to a more abstract and open ended task.

Teachers then use this knowledge to make judgements against the lesson objectives sequenced at the beginning of each unit. An overall termly judgement is then made to show whether children are working below, working towards or at the expected standard. This data is then analysed by the subject lead and any points are followed up.

Monitoring

The curriculum co-ordinator, alongside SLT and governors, is responsible for monitoring and evaluating curriculum progress. This is achieved through book scrutiny, planning scrutiny, resource audits, learning walks, dialogue with staff, pupil voice and lesson observations.

Learning at Home

Science activities are included in our family homework projects which are set termly throughout the year. This allows children to extend their learning, follow their interests and involve parents/carers and wider family members in their learning.

Role of Subject Co-ordinator

- The subject co-ordinator, together with the senior leadership team and governors, are responsible for monitoring and evaluating the quality of teaching and learning of science across the school.
- The subject co-ordinator will undertake any relevant training (including termly NST training) and keep abreast of current initiatives.
- The subject co-ordinator will liaise with staff to ensure they are aware of any new resources and encouraged to achieve excellence in science teaching.
- The subject co-ordinator is responsible for the ordering of resources, within the set budget, to enable delivery of lessons.

- The subject co-ordinator will deliver CPD for staff in school and share information through staff meetings and communication with staff.

This policy was updated in September 2025.