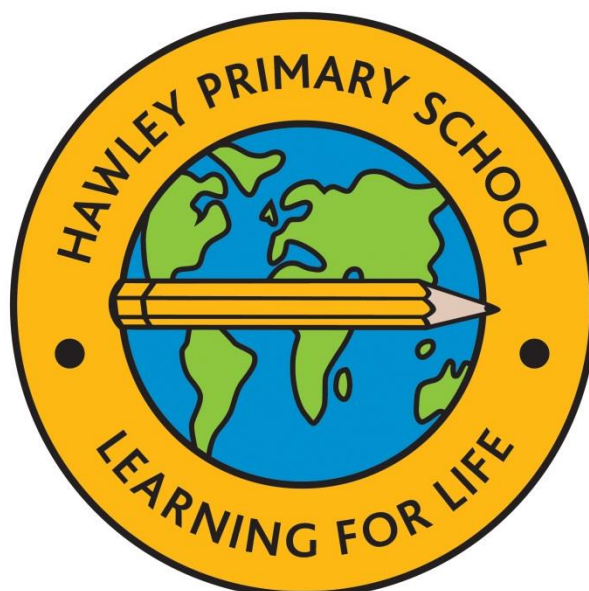


HAWLEY PRIMARY SCHOOL



SCIENCE POLICY

APPROVED BY: J BAKER (HEADTEACHER)

LATEST REVIEW: AUTUMN 2022

NEXT REVIEW: AUTUMN 2025

RATIONALE

Knowledge of science is built up through the experimental testing of ideas. Children need to be provided with opportunities to use scientific skills that aid in answering the questions they may have about the world that surrounds them. At Hawley, science is about developing children's ideas and understanding, fostering their natural curiosity by providing the tools to enable them to make sense of the world in which they live through investigation, as well as through using and applying scientific skills.

AIMS

We aim to prepare children for life in an increasingly scientific and technological world. We strive to enable our children to work as 'scientists' in order to explore their own environment with a curious and scientific approach. We support children in building their knowledge and understanding of scientific ideas by asking and investigating questions. We encourage open-mindedness, enquiry and hypothesis. We aim to foster care and concern for our environment and provide a wide range of opportunities for children explore and investigate their surroundings throughout the year. We aim for children at Hawley to understand that developing these investigative skills is vital in exploring how science has influenced our lives and help them to appreciate that it will continue to do so.

OBJECTIVES

- To provide children with an understanding of scientific processes.
- To support children in the acquisition of scientific skills.
- To develop children's skills in investigative science, including hypothesising, observing, measuring, predicting, experimenting, communicating, interpreting, explaining and evaluating.
- To teach scientific and investigative skills in a progressive way and provide a range of opportunities for these skills to be used in a purposeful way.
- To provide children with opportunities to carry out longitudinal studies to explore patterns and change in the local environment.
- To develop the use of scientific vocabulary (both reading and spelling) using this to record, explain and question.
- To develop the use of ICT when recording and investigating.
- To enable the children to become effective communicators of scientific ideas, facts and data.

THE ROLE OF THE SCIENCE SUBJECT LEADER

- Identify areas for improvement
- Create an action plan
- Support implementation of the action plan
- Evaluate impact of teaching on attainment and progress within Science
- Analyse data
- Monitor progress through planning scrutiny, work sampling, teacher assessment, observation and pupil conferences.
- Keep up to date with the latest developments in Science at County and National level and disseminate to staff accordingly.
- To audit, identify and purchase resources to enhance the teaching of Science.
- To ensure staff are following the necessary safety in science guidelines.

PLANNING

Science is a compulsory National Curriculum subject in all key stages. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study. Science will be taught every week at Hawley linking to our creative curriculum where possible, with each topic being covered within a two year cycle. Although 'working scientifically' is often described separately throughout programmes of study, it must always be taught through the teaching of science content therefore underpinning all science within our school. Teachers will plan scientific enquiries

inspired by the interests of their own class, based on the HIAS Learning Journeys and within the framework of the National Curriculum.

Teachers plan with reference to HIAS guidance “Safety in Science at Key Stage 1 and 2.” Children are actively involved in the risk assessment process, and, with the guidance and support of adults, are taught to manage the environment to ensure health and safety to themselves and others. Science coordinator will read the ‘CLEAPSS’ newsletter to keep up to date with safety information and will disseminate to teachers and other members of staff as appropriate.

Long Term Planning

Long term planning details when each area of science will be covered across the 2 year cycle on a rolling programme. This links to the areas of scientific learning and skills within the current National Curriculum.

Medium Term Planning

Medium term planning outlines when specific skills will be taught. Teachers make cross-curricular links wherever possible and refer to the science progression of skills when planning for each year group.

Short Term Planning

Short term planning details the scientific area, the scientific skills, the scientific vocabulary and differentiated activities, including support, where appropriate. This is creative and engaging, providing opportunities for scientific enquiry and problem solving whenever possible (teachers to refer to Learning Journey planning documents for further support with this).

CURRICULUM ORGANISATION, TEACHING AND LEARNING

The Foundation Stage

Science, within the Early Years, forms part of Understanding the World, where children are guided to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment. Children in EYFS have frequent opportunities for outdoor play and exploration. They are encouraged to explore and question through observing and interacting with natural processes. These activities enable them to test their ideas about the environment, living things, materials and physical processes through first hand experiences. The children in EYFS will have a range of opportunities throughout the year to experience and discuss patterns and seasonal changes within specific areas of the school environment. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children’s vocabulary will support later reading comprehension.

The Teaching and Learning of Science at Key Stage One

During Key Stage One pupils experience and observe living things, materials and phenomena. They are encouraged to be curious and ask questions about what they notice. They begin use scientific enquiry to help them answer their own questions and to link this to simple scientific ideas. The different types of scientific enquiry used in Key Stage One include observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests and gathering and recording data. Most of the Science learning in Key Stage One is done through the use of first hand practical experiences, although children are also encouraged to find things out using secondary sources of information, such as books, photographs and videos. They evaluate evidence and consider whether tests or comparisons are fair. They share their ideas and communicate them using scientific language, drawings, charts and tables.

The Key Stage 1 Science Curriculum consists of:

- Working scientifically

- Animal Survival
- Seasons
- Habitats
- Animal Lifecycles
- Pushes and Pulls
- Describing Materials
- Changing Materials
- Plants
- Making New Plants

The Teaching and Learning of Science at Key Stage Two

During Key Stage Two pupils learn about a wider range of living things, materials and phenomena to broaden their scientific view of the world around them. They apply their knowledge and understanding of scientific ideas to familiar phenomena, everyday things and their personal health, making links between ideas and to explain things using simple models and theories. They 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. They carry out more systematic investigations, working on their own and with others, to set up practical enquiries and comparative and fair tests. The children use their data to make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. They report and present findings from enquiries, including conclusions, causal relationships and explanations and evaluations of their results, in oral and written forms using a wide range of scientific language; conventional diagrams, charts and graphs. They identify scientific evidence that has been used to support or refute ideas or arguments.

The Lower Key Stage 2 Science Curriculum consists of:

- Working scientifically
- Rocks and Soils
- Plants and Their Food Production
- Solids, Liquids and Gases
- Plant Reproduction
- Mixtures and Separating Them
- Magnets
- Animals, Skeletons and Movement
- Living Things
- Digestion
- Making Electrical Circuits Work
- Light

The Upper Key Stage 2 Science Curriculum consists of:

- Space and Gravity
- Circulation
- Making New Substances
- Forces That Oppose Motion
- How Light Behaves
- Controlling Electrical Circuits
- Sound
- Fossils and Geological Time
- Classification and Evolution

HEALTH AND SAFETY

It is the legal responsibility of teachers to take every reasonable precaution to ensure the safety of themselves, pupils and colleagues. This involves identifying hazards and the risks they may present.

A *hazard* is something with the potential to cause harm

A *risk* is the likelihood of a hazard causing harm in practice.

Once a hazard has been identified steps must be taken to ensure that the activity can be carried out so that the risks presented by this hazard can be minimised.

Further guidance on hazards and risk assessment can be found in the CLEAPSS document L241 'Teaching Health and Safety in Primary Schools' and HIAS 'Safety in Science at Key Stage 1 and 2.' (available in Science folder and in Teacher Resources) and available to download online.

Hazard Guidance Cards are found in the final section of the Safety in Science at Key Stage 1 and 2 document.

The Role of the Science Subject Leader in Health and Safety

- To ensure that teachers understand the process of risk assessment in science and are aware of their responsibilities (see below)
- To ensure that information needed for risk assessments is easily accessible by teachers
- To ensure that when risks have been identified as significant, risk assessments are written down and reviewed
- To regularly check the CLEAPSS website and Hampshire Science Moodle for up to date advice
- To monitor and audit practice and resources
- To identify training needs
- To ensure the principles of safety in science are included in the school policy
- To report any shortcomings in line with the school's procedures.

The Role of the Teacher in Health and Safety in Science

- To take reasonable care of themselves and others
- To carry out the process of risk assessment as necessary, consulting the science co-ordinator if risks are high
- If appropriate, try out practical activities themselves before using them with children
- Follow the advice given in the HIAS document 'Safety in Science at Key Stage 1 and 2' and by CLEAPSS
- Support the implementation of all health and safety procedures and policies
- To follow the guidelines on the Hazard Cards to minimise risk
- To ensure that other adults and pupils in the room are aware of the risks involved in the activity, and the actions that should be taken to minimise risk.

Refer further to the HIAS document 'Safety in Science at Key Stage 1 and 2' for the responsibilities of the Authority, Governors and Head teacher with regard to Health and Safety in Science.

ASSESSMENT MONITORING AND RECORDING

Assessment is an integrated part of each science lesson. Assessment will be carried out throughout each session and when marking books to identify those pupils who have understood a key idea and those who need further support during the next science lesson. Each key idea will be revisited over a number of sessions, as a retrieval task, to ensure that those children who were identified can be given further support. Formative assessment will happen half termly. Children will be assessed against one or two key parts of substantive knowledge and one aspect of disciplinary knowledge each half term and recorded on Arbor. Summative assessment of each child's understanding of key concepts in science will be updated termly and recorded on Arbor.

RESOURCES

There is a central bank of science resources stored in the teacher workroom. Teachers use these resources to enhance their teaching and to enable children to develop their scientific skills and levels of enquiry. Teaching staff are responsible for the collection and timely return of these resources. Resources are audited and reviewed by the science coordinator.

EQUAL OPPORTUNITIES

We ensure that all our children have the opportunity to gain science knowledge and understanding regardless of gender, race, physical or intellectual ability. Teachers' planning shows how teaching and learning is scaffolded to ensure that it is accessible to all children within their class.

MONITORING AND EVALUATION

The Science policy and practise in the teaching of Science will be monitored and evaluated by the Subject Leader.