Haseltine Primary School

Science Policy 2026

Introduction

Carl Sagan said "Science is a way of thinking much more than it is a body of knowledge."

Primary Science should be child-led and enquiry-based with teachers setting out to develop and maintain their student's curiosity and wonder in the world in which they live.

National Curriculum Purpose of Study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes. Above all science should be interesting and fun.

Curriculum

At Haseltine, science tasks will have three types of learning goals: knowledge, skills and understanding. **Knowledge** is about facts. The easiest way to find out whether children have learned these facts is through regular self, peer and teacher assessment whether written or oral. This is why dialogue and discussion should be at the heart of science learning. Teachers need to ensure that discussion and debate are a central theme in science lessons so that pupils share and debate science knowledge. **Skills** are practical and experiential. They are not right or wrong; they are developmental so that children build their scientific skills over time. Scientific skills should be developed in the pursuit of 'finding out' so that children learn to apply their skills in order to investigate science questions. Like this, science skills and knowledge are not taught separately, but science skills are used in order to acquire knowledge and **understand** processes. Through the different types of investigation children should find answers to their science questions. It is important that children begin to understand the five different types of investigation and which types of question each type will answer.

In alignment with the school ethos, teachers are expected to refer to our list of BAME and female scientists to reflect the diversity of the scientific community throughout history and also our school.

Types of investigation (see Appendix A)

Teaching Sequence (see Appendix B)

Attainment and Assessment Expectations

Science should be taught for 1 hour each week in KS1 and 1 ½ hours each week in KS2.

By the end of Key Stage 1 and 2, children should have covered the skills (working scientifically) and knowledge programmes of study for that key stage.

End of unit knowledge assessments are provided by our new scheme and will inform planning in order to cater to the children's learning needs. skills (working scientifically) should be assessed during lesson time as children are engaged in investigations.

Planning Expectations

Haseltine now follows the **White Rose Science** scheme, which has recently received ASE Evaluated status. This means the resources have been independently reviewed for scientific accuracy, educational quality and effective teaching practice.

ASE Evaluated is a recognised mark of quality from the Association for Science Education. It shows that a resource has been carefully reviewed against key criteria, including:

- Scientific accuracy
- Alignment with the National Curriculum
- Strong pedagogy
- Engagement and accessibility

In short, it provides reassurance that what we are using in the classroom is both trustworthy and well designed.

Each lesson follows a familiar format, making it easier for teachers to plan and deliver, and for children to engage with the learning. This consistency reduces cognitive load for both teachers and children, allowing them to focus on the science rather than navigating new structures.

Guidance highlights "things to look out for", helping teachers anticipate and address common misunderstandings before they become embedded.

It includes strong progression mapping. Content is carefully sequenced into blocks and small steps, helping teachers understand not just what to teach, but when and why.

Practical ideas are embedded in each small step to support teachers in making every science lesson practical. One enquiry question is built into each block to ensure the five enquiry types are covered in each year group and to provide opportunities to develop children's working scientifically skills in enquiry contexts.

Activities can be adapted to suit the children and the development of their investigative skills and this should be evident in planning.

For individual tasks/lessons, consider:

- Shared Learning intentions – both skills and knowledge
- Target posters used to make it clear to students what knowledge and skills are being covered in each unit.
- Adaptation – ensuring the different science learning needs are met through activities and adult support.
- Raising key questions to stimulate thinking and assess knowledge.
- Select appropriate equipment to suit the needs of your class
- Methods of recording the children's learning – deciding how best to present their findings
- Reflecting on how science can have a meaningful context
- Use of adults during the lesson (evident in planning)
- Resources
- Vocabulary sheets used at beginning and end of unit to show progression.

Science can be taught in mixed ability groups with support for some children provided, but also challenge and extension provided for those more able pupils. This challenge can always be available to **all** children if they are able or wish to go forward.

The learning environment

All classrooms will have a science display area (see display guidelines in Appendix C) where evidence of on-going class enquires can be seen.

Inclusion - check Haseltine policy/ follow procedure

The pupils work individually, in pairs, or as part of a small group and as a whole class each term. They use a variety of means for communicating and recording their work, with discussion and debate being a central theme in science lessons. Children with literacy difficulties should not have this as a barrier to science learning. All children should be stretched and challenged through the depth of investigation; some children will need more support than others. Adaptation and activities that reduce cognitive load should be considered as"...the planned and spontaneous intervention or withdrawal of a teacher's actions throughout the lesson…" Like this, teachers need to plan for needs of their children, but also act according to their needs within the lesson and be ready to go 'off plan' when necessary. This should also include the actions of support staff in the class. It should be remembered that while children might need support at times, there are also times when teaching staff need to stand back and allow for discovery, intervening with questions to scaffold and support learning where necessary. Children learn more by finding out in science than being told.

Resources

Refer to White Rose **schemes of learning** prior to teaching for suggestions and research resource requirements in advance.

Science resources are centrally stored in the science cupboard. Equipment should be stored in labelled trays in open cupboard units. The responsibility for organising, setting up and maintaining this area is that of the Subject Leader. However, the whole staff are responsible for ensuring equipment is returned neatly, and cleaned, to the correct unit and that broken or used up equipment is reported to the Science Subject Leader so that, repairs, replacements or new orders can be made. Equipment must be taken from and returned to the science cupboard by staff only and not children. When finished with, equipment must be returned and not stored in classrooms indefinitely.

N.B. Under NO circumstances are children allowed access to the science resource area alone.

Subject Knowledge

All staff are encouraged to access **Reach Out Science CPD:**

https://www.stem.org.uk/resources/library/collection/4199/reach-out-cpd

which is designed to provide the professional development, support and materials needed to teach science with confidence and skill.

Health and Safety

All science activities should be consistent with the 'Be Safe! Some aspects of safety in Science and Technology for key stages one and two'

http://www.ase.org.uk/resources/health-and-safety-resources/health-and-safety-primary-science/

Science is taught in line with our general school Health and Safety Policy which all staff should be up to date with.

Science in our school is very safe. However, when children are engaged in a variety of practical activities, included open-ended investigations, there is always the possibility that something could go wrong, therefore, vigilance is needed.

Individual teachers will need to undertake their own specific risk assessment.

Refer to www.cleapss.org.uk – CLEAPSS is an advisory service providing support in science and technology for a consortium of local authorities.

It is the class teacher's responsibility to ensure science activities are safe. Using the above advice it is up to the individual teacher to do their own risk assessment.

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Appendix A: Types of investigation children should develop:

Type of investigation	Examples of investigation questions
Identifying and Classifying	• What do different animals eat? • All the food in the shop has been muddled up – how can we sort it? • What type of shoes do most children have? • How can we sort the clothes in the play corner? • Are all the wheelie toys the same?
Observation over time	• What happens to a seed when it grows? • What happens to bread if it's left out for a long time? • What happens to the ice cube in your hand? • What happens to the sun over the course of a day?
Pattern Seeking	• Do birds feed at different times of the day? • Which flowers do mini-beasts prefer? • Do all oranges have the same number of seeds? • Do we all have the same size feet? • How many turns does it take to make the clockwork car go? 1 metre? 2 Metres?
Fair testing	• What is a variable? • What will you keep the same? • What will you change? • Will changing the amount of light change the rate the seed grows? • Will the colour of bread make a difference to how many birds choose to eat it?
Research	• How does a dentist help us look after our teeth? • What's the most common minibeast in the UK? • How are candles made? • How is plastic made?

Teachers need to consider ensuring that pupils access the full range of these different types of investigations through children answering their own questions.

Appendix B: Teaching sequence:

Teachers need to ensure science planning always includes opportunities for children to raise their own questions about the topic. The best way to do this is to provide an interesting stimulus at the start of a topic and allow the children to develop their curiosity in the subject. Then the children should have the opportunity to say what they **know**, what they **want** to find out, and later also a chance to say what they have **learned** at the end of the topic (KWL). Teachers then use the children's knowledge and questions to adapt the science planning. Importantly teachers use the children's questions as the basis for investigations, teachers adding in their own questions to ensure coverage of the different types of investigations and the national curriculum knowledge and skills areas. This ensures science is largely child-led yet covers curriculum requirements. It is not acceptable to simply take science plans and teach because this does not maximise the children's prior knowledge and creates repetition that is boring for children and may miss gaps in learning that need covering. The general teaching sequence for science can be summarised as follows:

Explore!

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Pose question(s)- I wonder if/why/how/when/what….

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Decide on the type of enquiry needed

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Gather evidence

↓

Understand evidence

↓

Suggest answers

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Appendix C:

Science Display Guidelines

Classroom science displays should help support pupils learning and create a visually stimulating learning environment. All classrooms should have a science display.

Displays should aim to:

1. **Communicate ideas and information clearly.**

2. **Stimulate pupil interest, curiosity and questioning.**

3. **Show appreciation of pupil's work and interests.**

4. **Make the environment attractive.**

The classroom science display should include:

- **A unit target poster that includes information about what the children are learning about (knowledge) and what they are learning to do (working scientifically skills). This poster should be referred to regularly during teaching to ensure pupils are clear on the purpose of the lesson objectives.**

  At the end of the teaching sequence pupils can also use the information on the poster to support self-assessment and target setting.

- **Sources of information to support learning i.e. books, posters, interesting facts.**

- **Appropriate stimulating pictures/photographs and associated questions to provoke interest and discussion.**

- **Physical resources to support the unit of work i.e. examples of materials to be felt or tested for properties, magnets and magnetic toys, food packaging, different types of mirrors, plus scientific enquiry resources appropriate to the unit, for example hand lenses, force metres, measuring cylinders etc.**

- **The key vocabulary for the unit, for both skills and knowledge. If "additional" words are to be added it is important teachers and pupils are aware which are the core words, i.e. which words that must know and be able to spell.**

Science

Using the science frameworks

- The standard in this framework contains a number of 'pupil can' statements. To judge that a pupil is working at this standard in science, teachers need to have evidence which demonstrates that the pupil meets **all** of the 'working scientifically' statements and **all** of the 'science content' taught in the final year of the key stage.
- There is no requirement to have evidence from the classroom that pupils have met statements relating to science content taught before the final year of the key stage. Where possible, teachers should draw on assessments that have been made earlier in the key stage to make their judgement against this framework.
- The 'working scientifically' statements must be taught through, and clearly related to, the teaching of substantive science content in the programme of study. The 'science content' statements will be taught and assessed throughout the key stage. The framework shows where statements relating to science content appear in the national curriculum.

Working at the expected standard

Working scientifically

The pupil can, using appropriate scientific language from the national curriculum:

- describe and evaluate their own and others' scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources
- ask their own questions about the scientific phenomena that they are studying, and select the most appropriate ways to answer these questions, recognising and controlling variables where necessary (i.e. 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)
- use a range of scientific equipment to take accurate and precise measurements or readings, with repeat readings where appropriate
- record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- draw conclusions, explain and evaluate their methods and findings, communicating these in a variety of ways
- raise further questions that could be investigated, based on their data and observations.

Science content

The pupil can:

- name and describe the functions of the main parts of the digestive [year 4], musculoskeletal [year 3] and circulatory systems [year 6]; and describe and compare different reproductive processes and life cycles in animals [year 5]
- describe the effects of diet, exercise, drugs and lifestyle on how the body functions [year 6]
- name, locate and describe the functions of the main parts of plants, including those involved in reproduction [year 5] and transporting water and nutrients [year 3]

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- use the observable features of plants, animals and micro-organisms to group, classify and identify them into broad groups, using keys or other methods [year 6]
- construct and interpret food chains [year 4]
- describe the requirements of plants for life and growth [year 3]; and explain how environmental changes may have an impact on living things [year 4]
- use the basic ideas of inheritance, variation and adaptation to describe how living things have changed over time and evolved [year 6]; and describe how fossils are formed [year 3] and provide evidence for evolution [year 6]
- group and identify materials [year 5], including rocks [year 3], in different ways according to their properties, based on first-hand observation; and justify the use of different everyday materials for different uses, based on their properties [year 5]
- describe the characteristics of different states of matter and group materials on this basis; and describe how materials change state at different temperatures, using this to explain everyday phenomena, including the water cycle [year 4]
- identify and describe what happens when dissolving occurs in everyday situations; and describe how to separate mixtures and solutions into their components [year 5]
- identify, with reasons, whether changes in materials are reversible or not [year 5]
- use the idea that light from light sources, or reflected light, travels in straight lines and enters our eyes to explain how we see objects [year 6], and the formation [year 3], shape [year 6] and size of shadows [year 3]
- use the idea that sounds are associated with vibrations, and that they require a medium to travel through, to explain how sounds are made and heard [year 4]
- describe the relationship between the pitch of a sound and the features of its source; and between the volume of a sound, the strength of the vibrations and the distance from its source [year 4]
- describe the effects of simple forces that involve contact (air and water resistance, friction) [year 5], that act at a distance (magnetic forces, including those between like and unlike magnetic poles) [year 3], and gravity [year 5]
- identify simple mechanisms, including levers, gears and pulleys, that increase the effect of a force [year 5]
- use simple apparatus to construct and control a series circuit, and describe how the circuit may be affected when changes are made to it; and use recognised symbols to represent simple series circuit diagrams [year 6]
- describe the shapes and relative movements of the Sun, Moon, Earth and other planets in the solar system; and explain the apparent movement of the sun across the sky in terms of the Earth's rotation and that this results in day and night [year 5].