



HELSEBY HILLSIDE PRIMARY SCHOOL

SCIENCE POLICY

Spring 2023

Our Vision at Hillside

Through a positive encouraging environment, we provide the opportunity for every child to reach their full potential in science. We encourage children to be inquisitive throughout their time at the school and beyond. Our science curriculum aims to foster a healthy curiosity in children about our universe and promotes respect for the living and non-living things. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills. We ensure that the 'working scientifically' skills are built-on and developed throughout children's time at school so that they can apply their knowledge of science when using equipment, conducting experiments, building arguments and explaining concepts confidently and continue to ask questions and be curious about their surroundings

1. Curriculum

Statement of 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 skills** required to understand the **uses and implications** of science, today and for the future. We understand that it is important for lessons to have a skills-based focus, and that the knowledge can be taught through this

Aims of science teaching at Hillside:

- To develop attitudes of curiosity, originality, co-operation, perseverance, open mindedness, self-criticism, responsibility and independence in thinking.

- Providing our children with an enjoyable experience of science, so that they will develop a deep and lasting interest and may be motivated to study science further.
- To develop pupils' understanding of the effects of their actions on the environment and of how we can develop sustainable communities.
- To build on pupils' curiosity and sense of awe of the natural world.

Implementation

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

- Teachers have a good knowledge of the curriculum and know what is to be taught in their year group through a well-planned curriculum in which each year group has clear end points.
- Through their teaching teachers involve problem solving opportunities that allow children to apply their knowledge, and find out answers for themselves. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess pupils regularly to identify those children with gaps in learning, so that all pupils keep up.
- We build upon the knowledge and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results. Throughout the Key Stages, they become increasingly confident in their growing ability to come to conclusions based on real evidence.
- 'Working Scientifically' skills 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.

Objectives of science teaching at Hillside:

- To develop the child's ability to observe and find patterns in observation, raise questions, experiment and investigate, reason systematically and logically, solve problems and communicate.
- To develop the ability to work in a variety of ways including, working together in groups, independently, in partners and as a whole class.
- To follow the programmes of study at each Key Stage of the National Curriculum, including the Early Learning Goals for the Foundation Stage, in order to develop scientific skills, knowledge and understanding.
- To promote a 'healthy lifestyle' in our pupils.
- To develop a knowledge and appreciation of the contribution made by famous scientists to our knowledge of the world including scientists from different cultures
- To develop progressively pupils' ability to plan, carry out and evaluate simple scientific investigations and to appreciate the meaning of a 'fair test'.

Teaching and learning

The study of science will be planned to give pupils a range of differentiated activities appropriate to their age and abilities. Tasks will be set which challenge all pupils, including the more-able. For pupils with SEN, the task will be adjusted or pupils may be given extra support. The grouping of pupils for practical activities will take account of their strengths and weaknesses and ensure that all take an active part in the task and gain in confidence.

Pupils will be involved in a variety of structured activities and in more open-ended investigative work:

- activities to develop good observational skills
- practical activities using measuring instruments which develop pupils' ability to read scales accurately
- structured activities to develop understanding of a scientific concept
- open ended investigations including concept cartoons.

Relevance

Wherever possible science work will be related to the real world and everyday examples will be used.

Use of ICT in science:

When appropriate pupils will be given the opportunity to use ICT (video, digital camera, data logger) to record their work and to store results for future retrieval throughout their science studies. They will also be given the opportunity to obtain information using the internet.

Links with other subjects

Where possible, we use cross-curricular links to science wherever we can. Science relates especially well to curriculum subjects such as literacy, mathematics and design and technology.

Continuity, Progression and Sequencing

Foundation Stage pupils investigate science as part of Understanding of the World. Children are encouraged to investigate through practical experience; teachers guide the children and plan opportunities that allow the children to experience and learn whilst experimenting for themselves. By careful planning, pupils' scientific skills and knowledge gained at Key Stage 1 will be consolidated and developed during Key Stage 2. Learning is carefully sequenced so that learning builds on prior knowledge.

Equality of Opportunity

All children have equal access to the science curriculum and its associated practical activities. The SLT, classteachers and TAs at Hillside Primary School are responsible for ensuring that all children, irrespective of gender, learning ability, physical disability, ethnicity and social circumstances, have access to the whole curriculum and make the greatest possible progress. Where appropriate, work will be

adapted to meet pupils' needs and, if appropriate, extra support given. The most able pupils will be given suitably challenging activities.

Health and safety

Pupils will be taught to use scientific equipment safely when using it during practical activities. Class teachers and Teaching Assistants will check equipment regularly and report any damage, taking defective equipment out of action. A simple risk assessment will be carried out for all practical activities and any perceived hazards will be reported to the headteacher who will determine the appropriateness of said activity.

Assessment for Learning, recording and reporting

Assessment for learning is continuous throughout the planning, teaching and learning cycle.

Marking for Improvement

Much of the work done in science lessons is of a practical or oral nature and, as such, recording will take many varied forms thus making marking and feedback different. It is, however, important that written work is seen by the teacher and marked as appropriate, as an aid to progression and to celebrate achievement. When appropriate, pupils may be asked to self-assess or peer assess their own or other's work.

Monitoring of Science

- The monitoring of Science takes place as directed by the SDP
- Standards in Science across the school are monitored through lesson observation, work sampling and evaluation of planning

Resources

Materials and equipment are vitally important for allowing the first-hand experiences of children. A selection of everyday, as well as specialist equipment for science is centrally stored in our staffroom and in trays outside the staffroom. ALL EQUIPMENT SHOULD BE RETURNED TO ITS PLACE OF STORAGE IN A STATE OF SUITABLE USE BY THE NEXT MEMBER OF STAFF. SHORTAGES AND BREAKAGES SHOULD BE REPORTED TO THE SCIENCE SUBJECT LEADER FOR REPLACEMENT.

Working Scientifically:

End of KS1:

Plan	Do	Review
<p>Recognise the best type of enquiry to answer a question.</p> <p>Choose equipment, use secondary sources to obtain accurate observations and measurements.</p>	<p>Obtain observations and measurements using equipment and/or secondary sources.</p> <p>Record observations and measurements.</p>	<p>Draw conclusions and make explanations</p>
<p>I ask simple questions and recognise these questions can be answered in different ways.</p>	<p>I observe closely, using simple equipment (including changes over time)</p> <p>I can perform a simple test.</p> <p>I gather data and record data to help me answer my questions.</p>	<p>I use my observations and ideas to suggest answers to my questions.</p>

End of Lower KS2:

Plan	Do	Review
<p>Recognise the best type of enquiry to answer a question.</p> <p>Choose equipment, use secondary sources to obtain accurate observations and measurements.</p>	<p>Obtain observations and measurements using equipment and/or secondary sources.</p> <p>Record and present observations and measurements.</p>	<p>Draw conclusions and make explanations.</p> <p>Evaluate the process used (including next steps)</p>
<p>I ask relevant questions and use different types of scientific enquiries to answer them.</p> <p>I can set up simple practical enquiries, comparative or fair tests.</p>	<p>I make systematic and careful observations and take accurate measurements using standard units.</p> <p>I gather, record and classify data in a variety of ways to help me answer my questions.</p> <p>I record my findings using simple scientific language,</p>	<p>I use my results to draw simple conclusions/answer my questions</p> <p>I communicate what I have found out using straightforward scientific ideas and I report my findings using oral and written explanations and displays.</p> <p>I can identify differences, similarities or changes</p>

	tables, drawings and labelled diagrams	related to simple, scientific ideas and processes. Use straightforward scientific evidence to answer questions
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End of Upper KS2:

Plan	Do	Review
<p>Recognise the best type of enquiry to answer a question.</p> <p>Choose equipment, use secondary sources to obtain accurate observations and measurements.</p>	<p>Obtain observations and measurements using equipment and/or secondary sources.</p> <p>Record and present observations and measurements.</p>	<p>Draw conclusions and make explanations.</p> <p>Evaluate the process used (including next steps)</p> <p>Evaluate the data collected</p>
<p>I can plan different types of science enquiries (including changes over time) to answer questions. I recognise and control variables where necessary.</p>	<p>I can take measurements, using a range of scientific equipment with increasing accuracy and precision.</p> <p>I can take repeat readings when appropriate.</p> <p>I can record data and results of increasing complexity using e.g. scientific diagrams and labels, tables, bar and line graphs, classification keys, scatter graphs</p> <p>I can present the data and results in suitable formats using e.g. line graphs, bar graphs, scatter graphs and classification keys.</p>	<p>From my data and observations, I draw valid conclusions (i.e. consistent with the evidence) including causal relationships.</p> <p>I can identify scientific evidence to support or refute the ideas or arguments for my conclusion.</p> <p>I can use my test results to make predictions to raise further questions to set up further enquiries e.g. comparative and fair tests.</p>

Reviewed by	Jane Boudier – Science Leader	April 2023
Approved By:	Teaching & Learning Committee	26/04/23
Next review date:		26/04/24