

The Humberston Church of England Primary School



Science Policy

‘Unlocking possibilities, making a difference’
I can do all things through Christ who strengthens me
Philippians 4:13

Policy Adopted by Governors October 2023

Review Dates: Autumn 2025

Peace

Compassion

Perseverance

Unity

Service

Courage

Science Policy

Our School Vision

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Vision Statement

Science education provides children with the foundations for understanding the physical, chemical and biological aspects of life and encourages them to ask deeper questions about the natural phenomena. Our science curriculum has been developed to create explicit opportunities for pupils to demonstrate resilience through experiments, collaborative working, observation, accurate measurement which will in turn help children unlock possibilities for their future. Our science teaching opens opportunities for children to develop knowledge and understanding of important scientific ideas, processes and skills and relate these to everyday experiences in the wider world. Children should learn about ways of thinking, finding out about and communicating ideas and should explore values and attitudes (including British values and Christian values) through science and how they can make a difference. They should develop a thirst for understanding the world and beyond and it is this curiosity that will enable our children to flourish.

Curriculum Intent

Our science policy aims to ensure that all pupils develop scientific knowledge and conceptual understanding in order to understand the uses and implications of science today and for the future. Children develop an understanding of the nature, processes and methods of science through enquiries that help them to ask and answer scientific questions.

Knowledge and understanding

Children should:

- Be curious about things they observe, and experience and explore the world about them with all their senses;
- Use this experience to develop their understanding of key scientific ideas and make links between different phenomena and experiences;
- Begin to think about models to represent things they cannot directly experience;
- Try to make sense of phenomena, seeking explanations and thinking critically about claims and ideas.

Processes and skills

Children should:

- Acquire and refine practical skills needed to investigate questions safely.
- Develop skills of reasoning, predicting, hypothesising, asking questions, making inferences, concluding and evaluating based on evidence and understanding, and use these skills in investigative work.
- Develop the ability to think logically and work systematically and accurately.
- Practise mathematical skills, e.g. *counting, ordering numbers, measuring to decimal places, drawing and interpreting graphs and bar charts.*
- Learn why numerical and mathematical skills are useful and helpful to understanding.

Language and communication

Children should:

- Think creatively about Science and enjoy trying to make sense of phenomena.
- Develop language and skills through talking about their work and presenting their own ideas using sustained and systematic writing of different kinds.
- Use scientific and mathematical language including technical vocabulary and conventions, and draw diagrams and charts to communicate scientific ideas.
- Read non-fiction and extract information from different sources such as: reference books, videos and the internet.

Values and Attitudes

Children should:

- Work both independently and with others, listening to their ideas and treating these with respect, showing and developing British values and Christian values.
- Develop respect for evidence and evaluate critically ideas that may or may not fit evidences available.
- Develop a respect for the environment and living things and for their own health and safety.

Curriculum Implementation

The primary method will be to encourage children to use an investigative and problem solving approach. Children will ask relevant questions and plan different types of enquiry to answer them. In order for an investigation to take place, the children need to decide on what they will keep the same, what they will change and what they will measure. Children will make predictions and their investigations will be evaluated. They should be encouraged to think about "why" something happened and consider their predictions.

The science curriculum is delivered through co-operative group work, individual work, and whole class teaching.

Within this structure there will be:

- Whole class and group discussions and presentations.
- Demonstrations, explanations and instruction by teachers to groups, individuals and the whole class as well as child-led when possible.
- Practical activities to advance and consolidate knowledge and skills.
- Problem solving and investigation tasks.

EYFS

KS1

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. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

Lower KS2

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.

Upper KS2

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.

Assessment

Teachers are involved in continuous assessment of children's scientific developments and achievements during all science activities through observations, listening to children, discussing their work, asking questions and evaluating written work. On completion of a piece of work or investigation, the teacher assesses, and uses this assessment to plan for future learning. Written or verbal feedback is given to the child to help guide his/her progress. Children are encouraged to make judgements about how they can improve their own work. Written or verbal feedback is given to the pupil to help guide his/her progress. Significant achievements/non-achievements are recorded by the teacher and used to inform future learning. This is then used as a basis for assessing and monitoring the progress of pupils throughout of the year.

Teachers will assess their children half yearly to identify those children who are working below national expectations, at national expectation or at the mastery level and use this to inform planning, additional support and guide development priorities.

Inclusion

At Humberston CE Primary School we ensure that all children have the opportunity to gain scientific knowledge; we value the different cultures and needs and expectations do not limit pupils' achievements. The study of science will be planned to give pupils a suitable range of differentiated activities appropriate to their age and abilities. Tasks will be set which challenge all pupils.

Differentiation can be by resource (type and level of challenge), task, support (scaffolds, questioning, Teaching Assistant or peer support) or outcome (success criteria or an open-ended activity that allows pupils to demonstrate different levels of achievement).

Differentiation can be achieved by:

- Knowing our pupils' prior learning
- Providing different tasks
- Providing choice
- Moving from simple to complex ideas
- Moving from concrete to abstract ideas
- Moving from guided to independent tasks

Enhancement

In each year group, learning is enhanced through trips and visitors to the school to give pupils first hand learning experiences and provide them with a window to the world. Children are able take part in practical activities at school and further afield and are encouraged to explore, be hands-on and ask questions. These experiences motivate and engage pupils, allowing them to unlock possibilities in their knowledge and understanding of the world around them.

Parent/Carer Support

- Parents will receive information about topics to be covered at the beginning of each term.
- They will be invited to workshops, shows and other events taking place in the school.
- To engage in their child's learning parents can access the school website to find information about topics of study in science and view photographs of learning opportunities and experiences that the children have or are participating in.
- Parents will be informed of their child's progress and experiences they have had in parent meetings and in their child's annual report.
- Throughout the year they will receive letters and news outlining the experiences and opportunities that their children have participated in/will be participating in.

Curriculum Impact

The subject leader carries out monitoring of science teaching. Planning, annotated children's work and lesson observations will be reviewed and will form evidence in the policy and assessment file and be used to support moderation. Monitoring focuses on the effective communication of scientific knowledge and the quality of investigative work. At the end of the academic year a summary will be created detailing the standards in science across KS1 and KS2 and the areas for development will be highlighted. Impact will be measured through key questioning skills built into lessons, child-led assessment such as success criteria and peer assessment. To promote independent learning skills pupils are encouraged, when possible, to make judgements about how they can improve their own work. The science Subject Leader will monitor the impact of the science curriculum across the school through a variety of methods. Learning walks will provide an overview of the effectiveness of teaching in geography and the implementation of progression through the curriculum. Resources will be audited to ensure staff have the correct tools to deliver effective and impactful lessons. The utilisation of resources, including display materials, will be monitored to ensure that this continues to have a positive impact on the teaching and learning in science. The learning environment and Learning Journeys across the school will reflect the scientific technical vocabulary spoken and used by all learners. Staff and pupil voice will be used as a measure of how engaging the taught curriculum is to those that work with it. Book trawls and moderation of books will show the quality of pupil's work in terms of knowledge and understanding and moderation will allow staff to have a shared understanding of 'working towards', 'expected' and 'greater depth' in each year group. Staff continue to develop their subject knowledge and teaching through group planning sessions in each key stage, sharing good practice and planning collaboratively for better outcomes. The impact of the curriculum will be measured during staff and termly pupil progress meetings and accelerated progress plans created where needed.

Health and Safety

The class teacher is responsible for ensuring a safe working environment. They should check any equipment for safety before giving it to the children to use. Children should be made aware of any risks and dangers, and understand the importance of working safely at all times. Children should be encouraged to make their own risk assessments of activities as part of the learning process and to heighten their awareness.

Children should be encouraged to:

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- Understand the hazards associated with materials and equipment.
- Consider the risks of their planned activities.
- Ask advice of teachers/other adults.
- Think about their own safety.
- Think about other people's safety.

This policy is to be read in conjunction with the Food Policy.