Science Policy

2022

Date adopted by the governing body	May 2022
Date to be reviewed	May 2026
Signed: Chair of Governors	
Signed: Headteacher	

Purpose of Study:

At Chantry Community Primary School science is fully inclusive to every child. Our aim is to fulfil the requirements of the National Curriculum for science by providing a high-quality science education which stimulates pupils' curiosity and fascination about natural phenomena and events in the world around them.

Science links direct practical experience with ideas, it can engage learners at many levels. Scientific method is about developing and evaluating explanations through experimental evidence and modelling, leading to critical and creative thought. Through science pupils understand how major scientific ideas contribute to technical change, impact industry, business and medicine and help develop and improve the quality of life.

They learn to question and discuss science-based issues that may affect their own lives, the directions of society and the future of the world.

Aims:

The aims of teaching science in our school are to:

- Teach children to use themselves as starting points for learning about science, and to build on their enthusiasm and natural sense of wonder about the world
- Develop through practical work the skills of observation, prediction, investigation, interpretation, communication, questioning and hypothesising, and increased use of precise measurement skills and ICT
- Enable children to develop their skills of co-operation through working with others, and to encourage where possible, ways for children to explore science in forms which are relevant and meaningful to them
- To enable children to appreciate that we do not always know the answers when carrying out scientific enquiry as the world around them is continually changing and developing
- Develop working scientifically skills, such as reasoning, predicting, thinking logically, working systematically and accurately, and communicating scientifically
- To foster high expectations of children's ability to apply their Science skills and explore purposeful cross curricular links.
- Encourage and enable pupils to offer their own suggestions, and to be creative in their approach to science, devising their own investigations and taking lines of enquiry in a way that interests them
- Through the teaching of Science, teachers will look to encourage pupils' moral, social and cultural development as well as promoting British values and the Chantry School Values.

Special Educational Needs Disability (SEND)

All children will have equal access to the full Science programme of study that satisfies the National Curriculum 2014 requirements. Any children with identified SEND may have work additional to and different from their peers in order to access the curriculum dependent upon their needs. As well as this,

our school offers a demanding and varied curriculum, providing children with a range of opportunities for them to reach their full potential and consistently achieve highly from their starting points.

Curriculum Outline:

The programme of study at Chantry Community Primary School is based upon the 2014 Primary National Curriculum in England, which provides a broad framework and outlines the knowledge and skills taught in each Key Stage. Teachers plan lessons for their class using our knowledge organisers, which incorporate working scientifically. When teaching Science, we follow the children's interests to ensure their learning is engaging, broad and balanced. Before planning a unit of work, teachers assess children's prior knowledge and understanding to ensure work is pitched at the correct level. A variety of teaching approaches are used based on the teacher's judgement. Teaching key subject specific vocabulary is also a key part of our science curriculum. The vocabulary children will need for that unit are identified on the knowledge organisers and this builds upon the vocabulary they have learnt in earlier years. Our long-term planning lays out when different units of work will be taught across the year; these have been developed to support purposeful cross curricular links.

Early Years Foundation Stage:

In Early Years, children engage in scientific activities through learning journeys which lead towards the Early Learning Goals in Knowledge and Understanding of the World. The learning opportunities build upon the children's earliest experiences. Children are encouraged to: explore their surroundings using all senses; develop their skills of observation and to develop descriptive language; ask questions about what they experience and why things happen; learn about themselves and other living things; look closely at similarities, differences patterns and change; and begin to explore the wider environment through outings and trips.

Key Stage 1

The framework for our science curriculum in Key Stage 1 follows the national curriculum and is designed to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. Children are encouraged to be curious and ask questions about what they notice, to develop their understanding of scientific ideas by:

- Using different types of scientific enquiry to answer their own questions, including observing changes over time.
- Noticing patterns, grouping, and classifying things.
- Carrying out simple comparative tests and finding things out using secondary sources of information.

Children 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. Children are expected to read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

During years 1 and 2, pupils are also taught to use practical scientific methods, processes and skills by:

- 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 framework for our science curriculum in lower key stage 2 follows the national curriculum and is designed enable pupils to broaden their scientific view of the world around them, by exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments by beginning to develop their ideas about functions, relationships and interactions by:

- Asking their own questions about what they observe and making some decisions about which types of scientific enquiry are likely to be the best ways of answering them
- Observing changes over time, noticing patterns, grouping and classifying things.
- Carrying out simple comparative and fair tests.
- Using secondary sources of information.

Children also begin to draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out. Children are expected to read and spell with support scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.

During years 3 and 4, pupils are also taught to use practical scientific methods, processes and skills by:

- Setting up simple practical enquiries, comparative and fair tests.
- Making systematic and careful observations.
- 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 framework for our science curriculum in Upper Key Stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. This is explored this through:

- Exploring and talking about their ideas.
- Asking their own questions about scientific phenomena.
- Analysing functions, relationships, and interactions systematically.

Children will encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They are encouraged 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. They 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.

During years 5 and 6 pupils are also taught to use practical scientific methods, processes and skills. This is achieved this through:

- 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 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.

The principal framework for our science curriculum is drawn from the program of study for Key Stages 1 and 2 of the national curriculum. Chantry's long-term planning lays out when different units of work will be taught across the year; these have been developed to support purposeful cross curricular links.

Cross-curricular studies:

All children have opportunities to develop their scientific skills through a range of activities where they use exploration and enquiry to develop their scientific skills.

Assessment:

Assessment in Science is based upon scientific knowledge and understanding, rather than achievement in English or Mathematics. Planning and assessment go hand-in-hand, to ensure progress is made by every child. Children's work is assessed through observation, questioning and discussions. Teachers monitor the progress of each child against the learning objectives for the lesson and all recorded work is marked with feedback given to each child. During lessons children are actively encouraged to review and evaluate both their own work and that of their peers to help them both question and expand their understanding of the world around them.

Teachers assess the children's attainment against age related expectations in line with the school's criteria and the national curriculum. Evidence is gathered through activities such as: observations, questioning and oral responses to ensure understanding of key concepts for each unit. Parents/carers receive information about this in mid-year and end of year reports.

Health and Safety:

Health and safety has a high priority in our school and children are taught how to use resources safely. Where relevant, risk assessments are written as part of the planning process before any potentially dangerous activity is carried out or equipment used. Children are informed of any risks or hazards and are encouraged to assess and identify risks for themselves. Children will be shown how to use scientific equipment safely and PPE is worn if identified by the risk assessment.

Resources:

We are continually developing our resources for science teaching. Resources are kept in a central store where there are clearly labelled boxes of equipment for each topic. Situated in the same store are collections of materials and objects of scientific interest, e.g., springs, gears, rocks, magnets etc. Within year groups and individual classes, many non-fiction and fiction books are available, and all staff may request or suggest resource items they feel would be useful for a science unit of work.