Science Policy

Spring 2025

Context

At our school, we believe that science is a vital part of a child's education, fostering curiosity, creativity, and critical thinking. Our science policy is designed to ensure that every child is given the opportunity to explore, investigate, and understand the world around them through hands-on experiences and inquiry-based learning. By promoting a love of discovery and providing a solid foundation in scientific principles, we aim to inspire the next generation of problem-solvers, innovators, and responsible global citizens. Through this approach, we strive to nurture both scientific knowledge and a lifelong enthusiasm for learning.

Aims

The National Curriculum for science aims to ensure that all pupils:

- develop scientific knowledge;
- develop an understanding of the nature, processes and methods of science through different types of scientific enquiry;
- answer scientific questions about the world around them;
- are equipped with the scientific knowledge to understand the uses and implications of science, today and for the future;
- develop an extended specialist scientific vocabulary;
- apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data;
- should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1 and 2.

Scientific Process

'Working scientifically' specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand.

'Working scientifically' means focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry should include:

- observing over time;
- surveys and pattern seeking;
- identifying, classifying and grouping;
- comparative and fair testing (controlled investigations);
- researching using secondary sources.

Pupils should seek answers to questions through collecting, analysing and presenting data.

'Working scientifically' is described separately in the programme of study, but must **always** be taught alongside the substantive science content outlined in the programme of study.

Spoken language

The national curriculum for science reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and articulating scientific concepts clearly and precisely. They must be assisted in making their thinking clear, both to themselves and others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

Science curriculum

The programmes of study for science are set out year-by-year for key stages 1 and 2. Rhodes Avenue is required to teach the relevant programme of study by the end of the key stage. Within each key stage, Rhodes Avenue has the flexibility to introduce content earlier or later than set out in the programme of study. In addition, Rhodes Avenue can introduce key stage content during an earlier key stage if appropriate.

Rhodes Avenue is required to set out its school curriculum for Science on a year-by-year basis and make this information available online. Information on our Science curriculum can be found on our school website.

Programmes of Study

Key Stage 1

The principal focus of science teaching in Key Stage 1 is to enable pupils to experience and observe phenomena, to look 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.

Working Scientifically

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- 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 (Year 2 only).

Year 1

- Plants
- Animals, including humans
- Everyday materials
- Seasonal changes

Year 2

- Living things and their habitats
- Plants
- Animals, including humans
- Uses of everyday materials

KS2

Lower KS2 (Years 3 – 4)

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.

Vocabulary

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge. All classrooms should have a Science display with key vocabulary for the topic clearly displayed. New vocabulary for each unit should be discussed and explained in context. Teachers ensure vocabulary is understood, revisited, accessible and utilised by the children during a lesson and throughout the unit being taught.

Working Scientifically

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking relevant questions and using different types of scientific enquiries to answer them;
- setting up simple practical enquiries, comparative and fair tests;
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers;
- 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.

Prior learning in Science will be made explicit so that children can articulate clearly how their learning links together throughout the school years.

Year 3

- Plants;
- Animals including humans;
- Rocks;
- Light;
- Forces and magnets.

Year 4

- Living things and their habitats;
- Animals, including humans;
- States of matter;
- Sound;
- Electricity.

Upper KS2 (Years 5 – 6)

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.

Key Vocabulary

Pupils should read, spell and pronounce scientific vocabulary correctly. Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge. All classrooms should have a Science display with key vocabulary for the topic clearly displayed. New vocabulary for each unit should be discussed and explained in context. Teachers ensure vocabulary is understood, revisited, accessible and utilised by the children during a lesson and throughout the unit being taught.

Working Scientifically

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- 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.

Year 5

- Living things and their habitats;
- *Animals, including humans;
- Properties and changes of materials;
- Earth and space;
- Forces.

Year 6

- Living things and their habitats;
- *Animals, including humans;
- Evolution and inheritance
- Light;
- Electricity.

* The reproduction elements of the science curriculum are statutory

Diversity and Equality

Diversity drives innovation and science needs innovators. Therefore, we want to build a culture in our science teaching where difference is valued and part of what makes science inspiring. At Rhodes Avenue, we aim to provide a diverse curriculum that includes contributions to science from scientists from under-represented groups. British Science Week is used as an opportunity to

identify contemporary and historical successful STEM pioneers. Each year group has resources (book & website links) which celebrate the diverse people and careers in Science. Where possible, links are made with scientists from under-represented groups who are connected to the topic being taught. These scientists are celebrated as part of the collection of inspirational people studied throughout the academic year.

Sustainability and Climate Change

In line with our commitment to sustainability and addressing climate change, we have integrated relevant topics into the science curriculum across each year group. Children are encouraged to make real-world connections to the environmental challenges we face. Where possible, we provide opportunities for children to connect with the outdoors, whether through nature walks, gardening projects, or hands-on investigations in our school and local environments. These experiences not only deepen their understanding of scientific concepts but also embed the importance of sustainability and climate action into their learning. By engaging with these topics, we aim to inspire children to think critically about the environment and become proactive in protecting it.

Attainment targets

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.

Assessment

Throughout the school, teachers will assess whether children are working at/above or below the expected level for their age based on their understanding and application of the content of the National Curriculum 2014. Progress and attainment is reported to parents through parents' evenings and end of year reports.

Please refer to the Assessment policy for more information.

Links with other policies

- Planning, Assessment and Marking Policy
- Teaching and Learning Policy
- Equalities Objectives
- Equity, Diversity and Inclusion Policy
- RSHE Policy
- Health & Safety Policy
- First Aid Policy
- Allergies Policy

Equalities

Rhodes Avenue will ensure that its policies comply with its duties under the Equality Act 2010 and have due regard to the need to eliminate discrimination and other prohibited conduct to advance equality of opportunity and to foster good relations.

Procedures for policy monitoring and dissemination

All members of staff and governors will receive a copy of this policy. Copies are available to parents on request and can be downloaded from the school's website. This Policy has been approved by the Governing Body, the School Leadership Team and teaching staff, it will be reviewed in line with the curriculum policy schedule.

Staff responsible:

Headteacher
Science Leaders
Senior Leadership Team
Curriculum Committee