Newington Community Primary School

Science Policy

2023-2024

Amended:	**Term 1 2023**
Updated by:	**Hannah Raven**
Approved by the Governing Body:	
Signed:	**(Chair of Governors)**
Review:	**Term 1 2024**

Ambition, Achievement, Aspiration

Intent

At Newington Community Primary School, we are committed to providing all children with a Science curriculum which develops a solid foundation for understanding the world, an enthusiasm for the subject and the specific skills which will lead them to future academic success. This policy sets out the framework within which teaching and non-teaching staff can work, and sets out the school's aims, principles and strategies in relation to the teaching and learning of Science. It is to be used by teaching staff, in order to ensure high expectations of their pupils, which in turn encompass the development of all aspects of Science appropriate to their age and stage of development, and doing in this in such a manner that children will be engaged and enjoying their learning.

Science is about change; it has changed our lives and is vital to the world's future prosperity. Science is present in all aspects of our lives; the cloths we wear, the food we eat and the technology we use as part of our daily routines. In Science, pupils will learn the essential aspects of the knowledge, methods, processes and uses of science to develop their understanding of the world around them. Through building up a body of key foundational knowledge and concepts, pupils will be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. Pupils must be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Aims

The aims of the Science curriculum are:

- to develop a pupil's scientific knowledge and conceptual understanding.
- for pupils to develop an understanding of the nature, processes and methods of science through different types of science enquiries (Fair & Comparative Tests, Observation Over Time, Problem solving, Research, Identifying, Classifying & Grouping and Pattern Seeking) that help them to answer scientific questions about the world around them.
- to ensure pupils are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Implementation

The children undertake a broad and balanced programme which is personalised to our pupils; their needs and their local area. Through the teaching of science, children learn a range of skills, concepts, attitudes and methods of working, and will be taught how to 'work scientifically' alongside the science content.

Early Years

Nursery and Reception deliver science content through the 'Understanding of the World' strand of the EYFS curriculum. It is an integral part of their development and delivered through a combination of child-initiated and adult led activities. This involves guiding children to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment.

Key Stage 1

During Key Stage 1, pupils experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. Pupils will be encouraged to be curious and ask questions about what they observe. They will be supported to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions and most of the learning about science should be done through the use of first-hand practical experiences. They will begin to use simple scientific vocabulary and learn to communicate their ideas in a variety of ways.

Key Stage 2

During Key Stage 2 pupils will continue to broaden their scientific view of the world around them. This will be done through exploring, talking about, testing and developing ideas about everyday phenomena. They will also look at the relationships between living things and familiar environments, and begin 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. They should draw simple conclusions and use scientific language, to talk about and write about what they have found out.

Teaching and Learning

The teaching of science focuses upon the accumulation of knowledge to understand the world we live in.

Year Group	Topic coverage for the Year			
Year 1	Seasonal Change			
	Animals inc Humans	Everyday Materials	Plants	Seasonal Change
Year 2	All Living Things and their Habitat	Animals inc Humans	Plants	Use of Everyday Materials

Year 3	Forces and Magnets	Animals inc Humans	Rocks	Plants	Light
Year 4	Animals inc Humans	Sound	All Living Things and their Habitat	Electricity	States of Matter
Year 5	Earth and Space	Forces	Properties and Changes of Materials	Animals inc Humans	All Living Things and their Habitat
Year 6	Animals inc Humans	All Living Things and their Habitat	Electricity	Light	Inheritance and Evolution

In Key stages 1 and 2, Science is taught for two hours of each week. Year 1 and 2 teach 4 topics, and years 3-6 teach 5 topics, over the course of the academic year.

Throughout Science lessons, pupils will be given opportunities to:

- develop their understanding through systematic enquiry, through both hands on practical experiences and using secondary sources, as appropriate.
- to use ICT to collect, store, retrieve and present scientific information.
- relate their work in Science to everyday life and understand its significance in both a local and global context.
- explore scientific theories through simple experimentation, following the scientific enquiries and building on previous learning.
- consider simple scientific ideas and the evidence for them, and to collect evidence to test scientific ideas in a variety of ways.

- communicate scientific ideas and observations using appropriate scientific vocabulary.
- present information in a variety of ways including drawings, diagrams, tables and charts, in speech and writing. Be able to use standard units of measure including graphs to record and present information.

We recognise the fact that we have children of differing ability in all our classes, and so we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies which are differentiated by task, expected outcome and/or support from peers or adults.

Science curriculum planning

At Newington Community Primary School Science is taught discreetly, once a week for two hours, in order for pupils to develop science specific skills as well as interest and excitement for the subject. Science is taught on a rolling system, where topics may take more than 1 term to teach, with teachers moving on to a new topic once all of the content has been taught.

Scientific Enquiry

Science is taught with a focus on scientific enquiry; Fair & Comparative Tests, Observation Over Time, Problem Solving, Research, Identifying, Classifying & Grouping and Pattern Seeking, and with an emphasis on the pupils engaging in practical enquiry to support and develop their understanding of scientific concepts and skills. Teachers will use a range of strategies, including, exploration, investigative enquiry and illustrative enquiry. Teachers will ensure that some of the children's ideas are used as a basis for enquiry (allowing pupils to answer their own questions using scientific enquiry).

Working scientifically

'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 but embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions.

Pupils should be taught to use the following practical scientific methods, processes and skills; during year 1 and 2:

- 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.

During years 3 and 4:

- 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.

During years 5 and 6:

- 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.

Assessment and Recording

Assessment is an integral part of the teaching process. Assessment is used to inform planning and to facilitate differentiation. The assessment of children's work is on-going to ensure that understanding is being achieved and that progress is being made. Feedback is given to the children as soon as possible, and marking work will be guided by the school's Policy.

Monitoring

Monitoring takes place regularly through sampling children's work, and teacher planning, through a book scrutiny and lesson observations.

Roles and Responsibilities

The Science Lead has a responsibility to:

- undertake monitoring of standards in Science and use this to inform the Science action plan.
- provide leadership and management of their subject to secure high quality teaching and learning.
- play a key role in motivating, supporting and modelling good practice for all staff, including the organisation and presentation of School INSET.
- take a lead in policy development and review.
- to liaise with outside agencies and attend subject specific courses.
- to report to the Head teacher and Governing Body on Science related issues.
- to plan and organise the allocation and purchase of resources in accordance with available budget.

Health and safety

The safe use of equipment and materials is promoted at all times. The Association for Science Education document 'Be safe' has been adopted by the school as a realistic guide to primary school Health and Safety as is accordingly displayed in the science resource area. 'CLEAPSS' Primary Science and Technology newsletters are made available to staff. An advice telephone line is also available in respect of Health and Safety practice. All accidents and incidents are reported to the Head teacher who makes a decision as to appropriate action.

Science resources

Class teachers are responsible for informing the Science Leader and Head teacher of resources which are required in order to deliver their planned curriculum. Shared Science resources are stored (in the labelled boxes in The Hub). Information books on Science topic are available in the school library and a range of non-fiction texts relating to Science topics are available in classrooms and as part of the independent resources within the school.

Science based workshops and organisations are encouraged to be regular features of the school year. The whole school environment is used to maximum potential in order to support delivery of the Science Curriculum.

School visits are planned regularly to enhance learning and help the pupils to relate scientific enquiry to the real world.