Forest Hall Primary School

Science Policy

Version	Date	Adopted	Review
1.0	May 2018	Summer 2018	2019
1.1	May 2019	Summer 2019	2022
1.2	January 2023	Spring 2023	2026

Forest Hall Primary School

Science Policy

Purpose

At Forest Hall we aim to engage and excite our pupils, in and beyond the classroom, to develop scientific skills and knowledge, which will help them ask and answer questions about the world around them and to recognise the implications of science today and in the future. We aim to provide a good balance between substantive knowledge (laws, theories etc) and disciplinary knowledge (how scientific enquiries are carried out.)

The National Curriculum 2014 states why we teach science in schools:

'*A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics...Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena.'*

Aims

Through high-quality science teaching, we aim to help our pupils understand how major scientific ideas have played a vital role in society. Moreover, we aim to prepare our pupils for life in an increasingly scientific and technological world. We aim to do this by:

- Delivering high quality, interesting and engaging science lessons
- Using scientific contexts to develop and consolidate cross curricular skills in literacy, maths and ICT
- Teaching science in a global and historical context; including the contributions of significant scientists from a range of cultures
- Developing and extending pupils' scientific knowledge and understanding
- Developing pupils' ability to work scientifically and involve pupils in planning, carrying out and evaluating investigations
- Developing pupils' scientific vocabulary and ability to articulate scientific concepts clearly and precisely
- Developing key skills such as measuring accurately and using scientific equipment correctly.

- Ensuring that all pupils are appropriately challenged to make good progress in science

Teaching and Learning

At Forest Hall, teachers plan and deliver high-quality and engaging science lessons, incorporating a range of teaching and learning styles. They will provide opportunities for pupils to:

- Learn about science through first-hand practical experiences
- Develop their research skills through the appropriate use of secondary sources
- Work collaboratively in pairs, groups and/or individually
- Plan and carry out investigations with an increasing systematic approach as they progress through the school
- Develop their questioning, predicting, observing, measuring and interpreting skills
- Record their work in a variety of ways such as writing, diagrams, graphs and tables
- Read and spell scientific vocabulary appropriate for their age
- Be motivated and inspired by engaging and interactive science displays, which include key vocabulary and relevant questions
- Learn about science using the outdoor learning environment (where possible).
- Learn about significant scientists and how their work impacts everyday life. (Promote female scientists from recent times as well as the more famous scientists from the past.)

EYFS

The early years curriculum develops a sense of excitement and curiosity about natural phenomena, with emphasis on learning a wide range of vocabulary. These words should not be too technical but provide the “seeds” for developing concepts that will be built on in later years. Lots of learning will take place in the outdoor spaces around school and the children will be encouraged to explore the natural world using all their senses. They will learn about seasonal changes, and change and growth of plants and animals. They will also be introduced to changing states. Practical activities will focus on development of key skills such as observing, sorting and comparing, labelling and predicting. When learning about “people who help us”, the children will find out about the important role which scientists play in our society and be exposed to images, which show the diverse community of scientists at work in various STEM careers.

KS1 and KS2

The curriculum is organised into topics so that key concepts can be revisited and built on year by year. This is to avoid overloading working memory and ensuring that over time, knowledge can be stored in long term memory. All staff will assess prior knowledge and reinforce key learning before moving on. A common format for investigations is used throughout the school so that the children are familiar with the process and the key vocabulary. Within each topic, there is also specific year group scientific vocabulary. Key skills in science are introduced in early years and built on throughout key stage one. In year 3, skills from key stage one are reinforced and measurement skills, required for the key stage 2 science curriculum, are practised in the summer term.

Although children will be encouraged and given opportunities to carry out practical work themselves and practise using their key scientific skills, demonstrations by the teacher will also be used to model the process of carrying out investigations correctly. This balanced approach will ensure that through effective teaching, disciplinary concepts will be clearly understood. Teachers should not prioritise “wow” moments and exciting practical experiments without ensuring that there is a clear curricular link. The important role which scientists play in our society will be explored further with children in key stage one, as they learn a variety of key skills and find out more about the various roles which scientists have in the workplace.

In key stage two, the children will learn about key scientists, which are linked to the topics which they cover. As well as some of the more famous scientists from the past, significant female scientists and a more diverse range are also included. We also promote STEM careers to all our children and challenge any forms of stereotyping.

Units of Study	Y1	Y2	Y3	Y4	Y5	Y6
Animals inc Humans	■	■	■	■	■	■
Everyday Materials	■	■				
Seasonal Change	■					
Forces and Magnets			■		■	
Light			■			■
Plants	■	■	■			
Rocks			■			
Electricity				■		■
Living Things and their habitats		■		■	■	■
Sound				■		
States of Matter				■		
Earth and Space					■	
Properties and Changes of Materials					■	
Evolution and Inheritance						■

Cross-curricular links

The children need to see how knowledge is connected and where possible teachers make links between science and other subjects. Opportunities for the children to develop their literacy skills are built into lessons. Reading well written scientific texts helps pupils become familiar with key vocabulary and key concepts are reinforced. Familiarity with high quality texts also helps the children to write their own explanation texts to demonstrate their knowledge and understanding. Pupils are also taught how to use mathematics in science and key skills such as measuring accurately, interpreting and displaying data, using thermometers correctly etc are reinforced in science lessons.

As part of their scientific work, all pupils have opportunities to use ICT and interpret and generate data. They also have opportunities to use measuring equipment, cameras, pictures, photographs and common household items in investigations. There are also a selection of books available from the library, as well as the topical selection of books which are loaned from the Schools Library Service to support teaching and learning.

Time allocation

At least 1 hour in key stage 1, and 1.5 hours in key stage 2 every week is timetabled for specifically teaching science. Additional time may be added for outdoor activities and cross curricular work. A STEM week is usually timetabled during the summer term to give the children opportunities to use and apply their science, technology, engineering and maths knowledge and skills. A different theme is chosen every year and STEM career opportunities and significant scientists are also explored.

Inclusion

It is recognised that *all* pupils, including those with Special Educational Needs, must be given opportunities to show what they know and can do.
Recognising the different abilities within a class means that teachers must plan at a class, group and individual level. This involves:

- Using a range of teaching styles which match the experience and ability of all pupils within the class.
- Matching tasks to pupils' needs.

Various strategies are employed to allow pupils to achieve success:

1. Common tasks, which will expect different outcomes.
2. Stepped tasks, with a common starting point but which aim to extend more able pupils.
3. Grouping, in which pupils work on a task designed for that group.

4. Different resources, same task, which modifies the amount of information given to some pupils.
5. Independent learning - finding answers from a range of resources.

Resources

School is well equipped with resources needed to deliver the curriculum. Resources are located in the large walk- in cupboard in labelled storage boxes. Consumable materials, (batteries, flowers, salt etc) must be purchased in readiness for the beginning of the topic. Teachers should inform the science lead if they have any specific resource requirements.

Assessment

Teachers use formative assessment during their lessons through effective questioning to check understanding and identify gaps and misconceptions. They also use short regular recap sessions within lessons to encourage pupils to recall successfully from their long-term memory into their working memory. At the end of a topic an assessment task/test is done, which together with the child's classwork is used to assess if pupils have reached the expected standard. A recording sheet is also used in every year group to monitor progress of key scientific skills. Outcomes from the formative and summative assessment are transferred to the Target Tracker system. A written comment on attainment and progress in science is made on the annual report to parents/carers. Monitoring of spelling errors, particularly of scientific vocabulary needs to rigorous and consistent in line with school policy.

In EYFS, teachers assess science against the 'Development Matters' statements in the 'Understanding the World' area of the Early Years Curriculum.

Monitoring: Roles and Responsibilities

The role of the Governing body

- To delegate authority and responsibility to the headteacher to ensure all school staff and stakeholders are aware of and comply with this policy.
- Responsibility for ensuring that the school complies with all equalities' legislation.
- Responsibility for ensuring that this policy and all policies are maintained and updated regularly.
- Responsibility for ensuring that all policies are made available to parents on request.

A governor will be invited to take a particular interest in science and will:

- work closely with the headteacher and subject lead as nominated governor for science
- report to the Governing Body on the success and development of science within school.
- champion science within school.

The role of the Headteacher

- To ensure the delivery of teaching and learning in science across school as laid out in the national curriculum.
- To ensure that there are adequate resources in school to deliver the science curriculum.
- To monitor the teaching of science across the whole school

The role of the Science lead

- To lead on the development and implementation of this policy throughout the school.
- To offer help and support to all members of staff in their planning, teaching and assessment of the science curriculum.
- To attend appropriate network meetings/training, feeding back to colleagues, and ensure staff keep up to date with relevant information, best practice and developments.
- To lead and organise staff training sessions
- To review practice and resources in delivering the science curriculum and report to the headteacher.
- To produce and implement a science development plan if requested.
- To keep the science page on the website updated.
- To analyse attainment and progress in science against the National Curriculum objectives in line with school assessment procedures.
- To collaborate with STEM subject leads in school to promote STEM activities/clubs and to help plan and implement a whole school STEM focussed week if requested.
- To maintain links with industry through the STEM Ambassador programme.
- To plan and teach all science lessons across key stage 2 and to support and monitor the teaching of science in early years and key stage one.
- Ensure continuity and progression of knowledge and skills throughout the school

The role of the class teacher

- Devise medium and short- term planning.

- Develop pupils' spoken language, reading, writing and vocabulary in lessons.
- Plan and deliver engaging lessons
- Plan differentiated lessons which are interactive, engaging, and of a good pace
- Mark work following the school marking policy and give feedback following school guidance
- Report on progress and attainment following school guidance.

The role of parents/carers

Parents/carers are encouraged to take an active role by joining the school in celebrating success of their child's learning through attending progress evenings, assemblies and open morning sessions. They are informed via termly newsletters of their child's topics and are encouraged to show support in the completion of homework. Parents support their child by having them at school on time and ready to learn.

The role of pupils

Pupils support the learning of science by always trying their best and being ready to learn.

Links to other policies

- English Policy for standards relating to quality of written work.
- Maths policy for key skills and STEM links
- Design and Technology policy for STEM links
- Marking and Feedback policy
- Health and Safety policy

Review Date

This Policy will be reviewed by the leadership team following consultation with staff and the Governing Body of our school three years from ratification by the Governing Body.

Dawn Child
Lower Key Stage Two Phase Leader
October 2018

Reviewed
Leadership Team
May 2019

Reviewed
Claire Gibson (Science Lead)
January 2023