
	<h1>Science Policy</h1>	
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<b>Subject Leader</b>	Carolyn Cameron (MPS) Emily Williamson (WPS)	
<b>Intent in Science</b>		
<p>The whole ethos of Woodmansey CE Primary School is to provide every child with a happy, caring, learning environment in which he or she can develop their full potential – whatever their needs and irrespective of ability, race or gender.</p> <p>We believe that Science stimulates and excites pupils’ curiosity about phenomena and events in the world around them. It also satisfies their curiosity with knowledge. Because science links direct practical experience with ideas, it can engage learners at many levels. Through the subject, pupils learn to raise questions and discuss science-based issues which may affect their own lives and the world in which they live.</p> <p><b><u>AIMS</u></b></p> <ul style="list-style-type: none"> <li>• To develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.</li> <li>• To develop the natural curiosity of children about the world around them.</li> <li>• To develop questioning and enquiring minds through a range of enjoyable and interesting experiences.</li> <li>• To help children develop the skills to make systemic enquiries.</li> <li>• To provide opportunities for children to apply theoretical ideas to the solving of practical problems.</li> <li>• To enable children to develop an increasing attention to accuracy.</li> <li>• To foster a positive attitude to science and increase their understanding of how science is used in the wider world and in the future.</li> <li>• To develop the understanding of the nature, processes and methods of science through different types of scientific studies.</li> <li>• To develop accurate use and spelling of scientific vocabulary.</li> <li>• To meet the needs of each child so that they will reach their full potential.</li> <li>• To provide opportunities to explore science learning which is linked to a broader theme involving other subjects, such as STEM.</li> <li>• To engage children’s enthusiasm for science in an annual STEM week, which is rich in practical activities.</li> <li>• To teach science in a global and historical context; including the contributions of significant scientists.</li> </ul>		

### **Role of the Subject Leader**

The subject leader is not expected to know “everything” about a subject but is expected to be fully abreast of how best to teach and organise the subject in addition to being aware of current best practice and research in the subject. The subject leader will moderate the standards of children’s work and the progression of planning, teaching, and learning across the school. This includes the transition from the Foundation Year; understanding how the subject’s foundations are grounded and developed in the Foundation Year.

The subject leader will support colleagues in the teaching of the subject, informing them about current developments in the subject, and providing a strategic lead and direction for the subject in the school. This will involve leading teacher meetings as required and producing an annual subject evaluation to feed into the Standards Night and through to the new School Improvement Plan. The subject leader should advise the Executive Headteacher, Head of School, staff and governors of current practice in the subject and any new initiatives put forward by the government or LA.

### **Role of the Class Teacher, Senior Management Team & Governing Body**

The Role of the Governing Body:

The governing body should, in cooperation with the Executive Head teacher and Head of School, determine the school’s general policy and approach to the subject at the school. This will include the priority given to the subject within the context of the whole curriculum.

### **Implementation - Entitlement, Curriculum Organisation & Planning**

The Long-Term plan for Science is now based on the Science Programmes of Study for Key Stage 1 and 2. Each year group has allocated units to study totaling 64 hours. These link into the school’s ‘Thematic Spiral’. Medium Term plans have been written based on these Programmes of Study. From these, class teachers write their Short Term Plans in accordance with the school’s policy on Accelerated Learning and subject mastery.

The school is committed to the importance of learning through firsthand experiences in Science and developing children’s understanding of Science through Accelerated Learning techniques.

Wherever possible, it is important that the children learn through the ‘Working Scientifically’ strand of Science and develop skills as ‘real scientists’.

Through individual, small group and whole class experiences, pupils will be given the opportunities to develop the intellectual and practical skills to allow them to explore the world of science.

The activities will require a progressively more systemic approach, drawing on knowledge gained through previous experiences. They will be relevant to the children and will provide opportunities for trying out their own ideas. Activities will be differentiated by the class teacher when required and appropriate to the pupils being taught.

The curriculum for Science reflects the importance of Spoken language in pupil's development. 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.

### **Monitoring the Impact (Assessment, Reporting and Recording)**

Assessment is an on-going process which enables teachers to match the level of work to the children's understanding. Informal judgements will be made during lessons and completed work will be marked in accordance with the target set and appropriate success criteria.

At the end of a unit of work, teachers will make a summary judgement on the attainment of each child based on the National Curriculum statutory requirements. Children's achievements will be recorded using FliC and this will then be used to inform future planning. The Science lead will also be able to monitor the attainment of children in Science by accessing the Flic data across the school. At the end of KS1 and KS2, children will be assessed against National standards for the subject.

### **Mastery in Science**

#### **What it means to achieve mastery in Science**

A high-quality science education provides the foundations for understating the world through the scientific disciplines of biology, chemistry and physics.

Children will be taught essential aspects of knowledge, method, concepts and the skills to make systemic enquiries.

Children will build up a body of foundational knowledge and concepts which enable them to explore the wider world with excitement and curiosity.

Children will understand how science can explain what is happening and use this to predict how things will behave, giving them opportunities to question the world around us.

#### **Coherence in Science**

- The process of learning in Science is coherent across the school. Each unit within scientific enquiry should be taught in a step by step manner which is immediately understandable to the pupils and progresses within the year group and across the school.

- On starting a unit there should be a reminder of the lessons learned in previous units and particularly those with similar materials.

### **Variation in Science**

- Children will be able to work in a variety of different ways to develop their scientific skills.
- Opportunity will be given for children to work scientifically through the five different strands allowing variation to develop understanding of the different units.

### **Structure in Science**

- Unit plans should always be taught with the following structure:
  - Each unit starts with an assessment of prior knowledge.
  - Each unit is to incorporate relevant scientific skills ensuring that across the year all aspects of working scientifically are taught and revisited.
  - There is a high expectation of open-ended questioning from both teacher and child, and an investigative approach to learning is expected.
  - Children will work through the investigative process of predicting, experimenting, collecting data, analysing results and drawing conclusions. This may then lead to more questions!

### **Fluency in Science**

- Prior knowledge will be taken into consideration to ensure fluency.
- Pupils are expected to verbalise their reasoning and understanding with open ended questions at regular intervals. Pupils should expect to be challenged by critical questions and be given the opportunity to further their understanding with research and experimentation.

### **Making connections / logical reasoning Science**

- Pupils are encouraged to make connections with the real world and see Science in practise.
- Opportunities are given for the children to make connections through visiting scientists, STEM club and educational visits.
- The transferable skills of science can be used across the scientific units and the curriculum in general.
- Reasoning skills are used when children draw conclusions from the data they collect. They need to explain why, how, and consider further opportunities for investigations.

### **The KEY CONCEPTS/THEMES/PROCESSES which run through the units which need to be developed, step by step, and show progression year on year.**

Children will develop their knowledge, understanding and concepts in the units of the National Curriculum through the process of scientific enquiry. This will nurture a questioning mind.

These areas are:

- Research using secondary sources.
- Identifying, classifying and grouping.
- Making comparisons and fair testing.
- Pattern seeking.
- Observing over time.

## Science in the Foundation Stage

Science in the EYFS is taught through the areas of provision. Our aim is to develop enquiring minds and make science fun.

In the EYFS, the characteristics of effective learning from the Statutory Framework for the EYFS are the foundations on which the working scientifically skills build in Key Stage 1. While children are playing and exploring, teachers should be modelling, encouraging and supporting them to do the following:

- show curiosity and ask questions
- make observations using their senses and simple equipment
- make direct comparisons
- use equipment to measure
- record their observations by drawing, taking photographs, using sorting rings or boxes and, in FY, on simple tick sheets
- use their observations to help them to answer their questions
- talk about what they are doing and have found out
- identify, sort and group

The most relevant statements for Science are taken from the following areas of learning:

- Communication and Language
- Personal, Social and Emotional Development
- Understanding the World

There are opportunities to explore and investigate, both inside and out with the children regularly visiting the wildlife area and experiencing forest-school type activities.

The children are encouraged to use their fine and gross motor skills to develop scientific skills. They learn through talk, songs, play and being surrounded by a stimulating environment rich in opportunities and scientific vocabulary.

Science related topics are taught regularly throughout the year such as Space and Pets and the children have the opportunity to cook on a weekly basis.

Visits from scientists, STEM week and educational visits encourage a scientific mind.

Assessment of science is carried out using FLIC.

## Relationship with the rest of the curriculum and Cross Curricular Opportunities

Whilst Science is taught as a discrete subject, where relevant it will be linked with all other areas of the curriculum e.g. English, DT and Maths. The school also supports STEM in school wherever possible, with the STEM Leads liaising closely to ensure cross-curricular opportunities. Our STEM week ensures all the related subjects are

celebrated and visits from people who work in the field of STEM help demonstrate the relevance of the subjects in the world today.

### **Promoting Equality & Inclusion**

Teachers will be aware of children who have an EHC plans and those in vulnerable groups such as Pupil Premium; they will then be monitored appropriately. Work will be differentiated to the needs of the children to enable them to meet their full potential in the subject.

The teacher will also monitor those children who it is believed have an aptitude for the subject and a record will be kept to enable future teachers to develop these children's ability. Please refer to Gifted Children policy for requirements for identifying those who are gifted in the subject.

### **SEND**

All pupils will take part in the Science, subject to differentiation according to their individual needs and in accordance with the school's SEN Policy.

### **Talented Pupils**

All pupils will take part in the Science, subject to differentiation according to their individual needs and in accordance with the school's Gifted and Talented Policy.

### **Resources**

Science resources are kept in a central location and are monitored and replenished by the subject lead.

The subject lead will keep up to date with new resources, websites and apps and these will be shared with staff when appropriate.

### **Extended Curricular Opportunities, Wider Opportunities and Liaisons with Other Organisations**

We encourage children to be aware of wider opportunities relating to Science. During the annual STEM week, visitors are invited into school and share their experiences of

STEM subjects in the 'real world'. Every child will work with at least one guest this week.

In the Spring term, a STEM club is run by the Science and DT leads, in which guests share a variety of activities to inspire children in a love of the subject. These visitors include university professors, engineers and members of the NHS.

Links are made with local secondary schools and year 6 participate in a transition unit with the local feeder school.

The subject lead attends the termly co-ordinator meetings and is able to liaise with other school and share ideas and practice.

### **Safety**

All experiments are carried out in accordance with national safety guidelines published in the ASE 'Be Safe' publication. Safety issues are recorded on the short-term plans and teachers notify the Science Co-coordinator if there are any amendments or concerns. In addition to this, advice is available from CLEAPSS.