

Kew Woods Primary School

Science Policy



Science Intent Statement

Basic Curriculum Principles:

1. **Learning is a change to long-term memory**
2. **Our aims are to ensure that our pupils experience a wide breadth of study and have, by the end of each key stage, long-term memory of an ambitious body of knowledge**

At Kew Woods Primary School, it is our intention to help all children have access to a high-quality science education, which provides the foundations for understanding the world through the specific disciplines of biology, physics and chemistry. The scientific area of learning is concerned with developing pupils' understanding of the nature, processes and methods of science through different types of science enquiries, that help them to answer scientific questions about the world around them. We intend to build a science curriculum which will ensure pupils are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future. At Kew Woods Primary School, we aim for all pupils to become enquiry-based learners, with an emphasis on working scientifically. This approach will be underpinned within our science curriculum by focusing on **Planning** investigations, **Doing** investigations and **Reviewing** the results/outcomes.

Implementation:

At Kew Woods Primary School, teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all pupils are capable of achieving high standards in science. We begin the teaching of science in Foundation Stage. Activities are usually adult directed at the outset and children are then encouraged to practise the skills through continuous provision. Pupils in KS1 will develop their understanding of Chemistry, Biology and Physics. As the children move into Key Stage 2 they will broaden their knowledge and deepen their understanding of earlier work in Chemistry, Biology and Physics.

Our whole school approach to the teaching and learning of science involves the following;

- A clear and comprehensive scheme of work (ASE) in line with the National Curriculum where teaching and learning should show progression across all key stages within the strands of Science.
- Science will be taught weekly, planned and arranged in topic blocks by the class teacher. This is a strategy to enable the achievement of a greater depth of knowledge.
- To guide teachers planning, the key knowledge and skills of each science topic is also informed by the Associate of Science Education's 'Planning Matrices'.
- Teachers are provided up-to-date CPD training for the planning and delivery of science within their year group.
- Through our planning, we involve problem solving opportunities that allow children to apply their knowledge, and find out answers for themselves. Children are encouraged to ask their own questions, and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom.

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- Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess pupils regularly.
- We build upon the knowledge and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting and using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence.
- Working Scientifically is embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.
- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.
- Teacher planning will incorporate cross curricular opportunities for pupils. English and DT will be closely linked with Science as children use skills in these subjects to demonstrate and communicate what they have learnt e.g. through the use of spoken language.
- Children are offered a wide range of extra-curricular activities, trips, high school visits and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.
- Regular events, such as Science Week or project days, such as Dyson House Events, allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills.

Foundation Stage

The Foundation Stage deliver science content through the 'Understanding of the World' strand of the EYFS curriculum. 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

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking 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

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as books, photographs and videos. Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Lower Key Stage 2

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. Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.

Upper Key Stage 2

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. Pupils should read, spell and pronounce scientific vocabulary correctly.

At Kew Woods Primary School we are committed to providing all children with an equal entitlement to scientific activities and opportunities regardless of race, gender, culture or class. We aim to meet the needs of all our children by differentiation in our science planning and in providing a variety of approaches and tasks appropriate to ability levels. This involves providing opportunities for SEND children to complete their own projects, with support, to develop speech and language skills, as well as scientific skills and knowledge. This will enable children with learning and/or physical difficulties to take an active part in scientific learning and practical activities and investigations and to achieve the goals they have been set. Some children will require closer supervision and more adult support to allow them to progress whilst more able children will be extended through differentiated activities. By being given enhancing and enriching activities, more

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able children will be able to progress to a higher level of knowledge and understanding appropriate to their abilities.

Impact:

The successful approach at Kew Woods Primary School results in our pupils following a fun, engaging, high-quality science education, that provides children with the foundations and knowledge for understanding the world. Our engagement with the local environment ensures that children learn through varied and first-hand experiences of the world around them. Frequent, continuous and progressive learning outside the classroom is embedded throughout the science curriculum. Through various workshops, trips and interactions with experts, children have the understanding that science has changed our lives and that it is vital to the world's future prosperity.

Children's progress is continually monitored throughout their time at Kew Woods Primary School and is used to inform future teaching and learning. 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 as set out in the National Curriculum. These are set out as statutory requirements. We also draw on the non-statutory requirements to extend our children and provide an appropriate level of challenge.

Assessment for learning is continuous throughout the planning, teaching and learning cycle. However, children are more formally assessed half termly in KS1 and KS2 using a variety of methods:

- Observing children at work, individually, in pairs, in a group, and in classes.
- Questioning, talking and listening to children
- Considering work/materials/investigations produced by children together with discussion about this with them.
- Through related topic focussed assessment tasks. This is supported by Bath Spa Universities 'Teacher Assessment in Primary Science' project.
- Pupils will also be assessed on the withholding of key scientific vocabulary throughout a topic, with pre and post learning key vocabulary definition testing.

In EYFS, we assess the children's Understanding of the World and some aspects of Expressive Arts Design, which are also science based.

Children at Kew Woods Primary School overwhelmingly enjoy science and this results in motivated learners with comprehensive scientific understanding.

Policy Implementation and Review

This policy was reviewed by SLT, shared with staff and approved by governors. It will be reviewed annually as per the policy review cycle.