SCIENCE POLICY

Park Hill Primary School

At Park Hill Primary School, we pride ourselves on fostering a healthy curiosity about the universe and encouraging our pupils to ask questions about how and why things happen. Our curriculum ensures progression across the school from the Early Years Foundation Stage (EYFS) to Year 6, reflecting the requirements of the National Curriculum.

We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout the programme of study, children acquire and develop these key foundational skills, ensuring that their scientific mindset is developed and taken beyond primary school.

Our approach to science reflects and supports our six school values: *Community, Equality, Respect, Compassion, Aspiration and Resilience*

INTENT

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

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics;
- develop understanding of the nature, processes and methods of science through different types of scientific enquiry that help them to answer scientific questions about the world around them;
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. Insecure or superficial understanding will not allow genuine progression. Pupils may otherwise develop misconceptions and experience difficulties at key points of transition or when encountering more complex scientific content.

Pupils should be able to describe associated processes and key characteristics using common language, while also becoming familiar with and accurately using technical terminology. They should build an extended specialist vocabulary and develop confidence in communicating their scientific understanding.

Pupils should also apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data. Scientific learning is supported by meaningful links with other areas of the curriculum and through contexts that maximise pupils' engagement and motivation.

At Park Hill Primary School, we aim to:

- nurture curiosity within our pupils about the physical and natural world and develop their ability to investigate it and discover more about it;
- enable children to hypothesise, predict and test different scientific claims;
- equip children with secure knowledge of the human body and how this links to their own life choices relating to nutrition, health and exercise;
- develop within our pupils a secure understanding of scientific enquiry and a love of scientific investigation;
- develop pupils' ability to ask questions, make predictions, carry out investigations and draw conclusions from evidence;
- develop pupils' confidence in using scientific vocabulary and communicating their understanding;
- increase pupils' awareness of different careers in science and possible pathways into these careers;
- develop pupils' understanding of the importance of science in the world around them and its role in shaping our future.

The Nature, Processes and Methods of Science

'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. Instead, it is embedded throughout the teaching of biology, chemistry and physics.

The key features of scientific enquiry developed across the school include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing and researching using secondary sources.

Pupils are encouraged to ask scientific questions, make predictions, plan investigations, identify variables, collect and record evidence, analyse results and draw conclusions.

Children are taught that investigations do not always produce the results they expect and that unexpected results can provide valuable opportunities for further questioning and investigation. Through this approach, pupils develop resilience and an understanding that scientific knowledge is developed through evidence, questioning and investigation.

Spoken Language and Scientific Vocabulary

The National Curriculum for science reflects the importance of spoken language in pupils' development across the whole curriculum. The quality and variety of language that pupils hear and use are key factors in developing their scientific vocabulary and articulating scientific concepts clearly and precisely.

Teachers provide opportunities for children to discuss their ideas, explain their reasoning, ask questions and communicate their findings. Discussion is used to probe understanding, identify misconceptions and help pupils make their scientific thinking clear to themselves and others.

Scientific vocabulary is explicitly introduced and revisited throughout the curriculum. Pupils are encouraged to use technical terminology accurately and precisely and to develop an increasingly extensive scientific vocabulary as they progress through the school.

Teaching and Learning

Our principal aim is to develop children's knowledge, skills and understanding in science. We do this through regular science lessons in which children are encouraged to think and work like scientists.

Lessons are planned to develop pupils' sense of awe and wonder about the world around them through a wide range of scientific demonstrations, practical activities and experiments.

A range of activities from **Explorify** are used to encourage children to think about what is happening, ask questions, make connections and consider how science affects the world in which we live.

Practical investigations are used purposefully to develop children's understanding of scientific concepts and to provide opportunities for pupils to apply their knowledge and working scientifically skills.

Curriculum Planning, Progression and Coherence

Science is a core subject within the National Curriculum. At Park Hill Primary School, we use the **Primary Science Quality Mark (PSQM) framework** to support the development of high-quality science teaching and to ensure that science is taught coherently across the whole school.

The PSQM framework supports our approach to science by helping us to develop a clear and progressive curriculum from EYFS to Year 6. It supports subject leadership, curriculum development and the monitoring of the quality of science provision across the school.

We use the framework to ensure that pupils build systematically on their prior learning and that scientific knowledge, vocabulary and working scientifically skills are developed progressively as children move through the school.

Early Years Foundation Stage

In the Early Years Foundation Stage, science is developed primarily through **Understanding the World**. Teachers use the **EYFS matrices** to support their planning and to ensure that children experience a broad range of age-appropriate scientific learning opportunities.

The EYFS matrices provide a framework for teachers to plan engaging, practical and experiential activities. Children are encouraged to explore, observe, question and investigate the world around them through play and first-hand experiences.

Children develop an understanding of living things, materials, natural phenomena and their immediate environment. They are encouraged to notice changes, make observations, ask questions and begin to develop an understanding of cause and effect.

This provides children with strong foundations for their transition into Year 1 and the National Curriculum science programme.

Key Stage 1 and Key Stage 2

In Years 1–6, we use the **White Rose Science Scheme of Learning** to support the delivery of the National Curriculum.

White Rose provides a structured progression of scientific knowledge and concepts and supports teachers in delivering learning systematically across the school. The scheme incorporates enquiry-based learning, practical investigations and real-world applications.

Teachers use the White Rose materials alongside their professional knowledge, the National Curriculum and the school's science curriculum expectations to ensure that learning is appropriate to the needs of their pupils.

Across Key Stage 1 and Key Stage 2, pupils are given opportunities to:

- develop secure scientific knowledge;
- revisit and build upon prior learning;
- develop and apply working scientifically skills;
- use scientific vocabulary accurately;
- investigate scientific questions through practical enquiry;
- collect, record, interpret and analyse data;
- apply mathematical knowledge within science;
- make connections between different areas of science;
- understand the relevance of science to everyday life and the wider world.

The use of the PSQM framework, EYFS matrices and White Rose Science ensures that science is planned and delivered as a coherent journey from the Early Years through to the end of Year 6.

Assessment and Recording

At Park Hill Primary School, we recognise that formative assessment lies at the heart of promoting learning and raising standards of attainment. We further recognise that effective formative assessment depends crucially on using the information gained to inform teaching and address misconceptions.

Our assessment procedures within science encompass:

- formative assessment throughout lessons to gauge understanding and identify areas for improvement;
- teacher observation of children during practical activities, group work and discussions;
- effective questioning to provoke critical thinking and assess understanding;
- assessment of pupils' use of scientific vocabulary and their ability to explain scientific concepts;
- assessment of pupils' ability to apply working scientifically skills during investigations;
- an end-of-block assessment to determine pupils' retention and understanding of key knowledge;
- 'close the gap' teaching where assessment identifies areas requiring further development;
- identified areas of weakness being revisited through future **3Qs** to support retrieval and ensure knowledge is embedded into long-term memory;
- opportunities for pupils to self-mark and peer-mark.

Science and Careers

At Park Hill, we recognise the importance of developing pupils' aspirations and helping them to understand the relevance of science beyond primary school.

Throughout their time at Park Hill, pupils are introduced to a range of scientific careers and pathways. Teachers make links between the scientific knowledge being taught and its applications in the wider world.

We aim to help pupils recognise that science contributes to a wide range of careers and that there are many different pathways into scientific and science-related professions.

Impact

The impact of our science curriculum is seen in pupils who:

- demonstrate curiosity about the world around them;
- develop secure and progressively deeper scientific knowledge;
- use scientific vocabulary accurately;
- ask relevant scientific questions;
- make predictions and test hypotheses;
- plan and carry out appropriate scientific investigations;
- understand the importance of fair testing and variables;
- collect, record, interpret and communicate scientific information;
- use evidence to draw conclusions;
- recognise and address misconceptions;
- demonstrate resilience when investigations produce unexpected results;
- work collaboratively and respectfully with others;
- understand the relevance of science to everyday life and the wider world;
- recognise the contribution science makes to society;
- have an awareness of the range of scientific careers and future pathways available to them.

Through our use of the **PSQM framework**, EYFS matrices, White Rose Science, formative assessment and ongoing curriculum monitoring, we aim to ensure that every pupil experiences a coherent, progressive, engaging and inclusive science curriculum from EYFS through to the end of Year 6.