Science at Shenley Primary School

Intent

At the centre of our science curriculum are our core school values - self-belief, teamwork, aspiration, respect and strength in kindness - which shape everyday life in our school. Our topics are guided by the National Curriculum and are responsive to children's interests and the local context. Through our science teaching, we aim for our pupils to:

- Experience a broad and balanced Science curriculum.
- Confidently explore and investigate the world around them, developing a deeper understanding of the environment in which we live.
- Gain secure scientific knowledge, concepts, skills, and positive attitudes.
- Build and progress the key knowledge identified within each unit and year group, applying scientific skills with increasing confidence.
- Develop a sense of excitement and curiosity about natural phenomena.
- Foster respect for living organisms and the physical environment.

Curriculum Intent

Our Science curriculum intent is rooted in a structured, progressive approach that ensures pupils:
• Become confident scientists who can ask questions, plan and carry out investigations, observe carefully, and draw conclusions based on evidence.
• Build secure knowledge of key scientific concepts and vocabulary, applying this understanding consistently across the curriculum.
• Use precise scientific language to explain ideas, justify predictions, and communicate findings clearly in both spoken and written forms.
• Develop accuracy, curiosity, and enjoyment in scientific enquiry through high-quality practical experiences that build understanding, reasoning, and critical thinking.
• Engage with a broad range of scientific topics and real-world contexts to deepen understanding of the natural world and its impact on society.
• Record observations and results clearly and consistently using appropriate formats such as diagrams, tables, graphs, and written explanations.

Scientific concepts are introduced and developed through a balance of modelled, shared, guided, and independent learning, ensuring pupils build strong foundations before progressing to more complex scientific thinking and enquiry skills.

Inclusive Intent
We intend for Science to be accessible to all learners, regardless of background, language, or ability. Our inclusive approach ensures that every pupil is effectively supported and appropriately challenged through adaptive teaching strategies, targeted interventions, and the use of high-quality scientific resources and texts.

We aim to create a classroom culture where mistakes are valued as an essential part of scientific We aim to create a classroom culture where mistakes are valued as an essential part of scientific enquiry and where perseverance, curiosity, and collaboration are actively encouraged. All pupils are supported to see themselves as confident scientists who can question, investigate, and communicate their understanding effectively.

Cross-Curricular Intent
We recognise the importance of meaningful cross-curricular links in Science to deepen understanding and make learning purposeful and relevant. Wherever possible, science learning is connected with other curriculum areas such as mathematics, literacy, geography, computing, and design technology. Pupils are given opportunities to apply scientific knowledge and skills through data handling, reading and writing for different purposes, problem-solving, and real-world contexts. These links help pupils to see science as an integral part of everyday life and support the development of transferable skills across the curriculum.

Personal Development Intent

Science lessons play a key role in supporting pupils' personal development by fostering curiosity, confidence, and resilience. Through enquiry-based learning, discussion, and practical investigation, pupils are encouraged to ask questions, share ideas, and reflect on their learning. They develop perseverance when experiments do not go as planned and learn to work collaboratively, showing respect for others' views. Science also helps pupils to build independence, problem-solving skills, and a sense of responsibility as they consider the impact of scientific advances on people, society, and the environment.

Outcomes
By the end of their primary education, our intent is that pupils will:

- Work scientifically by asking questions, planning and carrying out investigations, observing carefully, and drawing conclusions based on evidence.
- Use scientific vocabulary accurately to explain ideas, record findings, and communicate conclusions in a range of written and oral formats.
- Show curiosity, resilience, and confidence when exploring scientific ideas and solving problems.
- Apply scientific skills and understanding across the curriculum and to real-life contexts.
- Be well-prepared for the next stage of their education with a strong foundation in scientific enquiry and thinking.

Implementation

At Shenley Primary, we draw on both the Grammarsaurus and White Rose Science schemes as springboards for our teaching. We use PLAN Science resources to support and guide our scientific enquiries. Our School Curriculum incorporates the National Curriculum while also extending beyond it to include the wider learning opportunities available at Shenley Primary School.

Enrichment

Each year, we dedicate a full week to British Science Week. During this time, lessons centre around fun, practical, and engaging activities linked to the annual theme. Pupils explore scientific ideas through exciting, hands-on experiences and whole-school events. We also invite visitors from external organisations to work with the children, and we organise science-focused trips to provide stimulating, real-world learning opportunities.

- Units of work are planned to build on pupils' prior knowledge and skills, and we aim to make meaningful cross-curricular links with other subjects.
- A skills progression map has been developed for each Key Stage to ensure that children continue to build and deepen their scientific skills over time.
- To support pupils in knowing more and remembering more, regular retrieval activities are incorporated to review and revisit previous learning.
- At the start of each unit, children receive a knowledge organiser outlining key information and vocabulary. This is not used for assessment but serves as a reference tool to support their understanding.
- Children have access to key vocabulary and are encouraged to use it in both written and oral work, helping them to become confident in using scientific terminology accurately and precisely.
- A range of resources is used to help children develop their knowledge and understanding, particularly in relation to working scientifically.
- Pupils are supported in building on prior learning and making connections between ideas, enabling them to question and make sense of the world around them.

- We make full use of our outdoor learning areas, providing opportunities for pupils to observe the natural world and conduct enquiries and experiments outside.

Impact

The impact of our science curriculum is that pupils leave primary school as confident, capable, and enthusiastic scientists who are curious about the world around them, can think critically, apply scientific knowledge and skills effectively, and communicate their ideas and findings with clarity and confidence.

By the time children leave Shenley Primary School, they will have developed:

- Confidence in their scientific knowledge and skills, enabling them to apply these across the curriculum.
- A secure foundation of understanding that prepares them for further study in Secondary School and beyond.
- The ability to question, analyse, and evaluate evidence within an ever-changing scientific world.
- An enriched scientific vocabulary that allows them to clearly articulate their understanding of key concepts.
- Practical skills that support effective investigation and experimentation.

Adaptive teaching

Science at Shenley is designed to be accessible to all pupils, regardless of background, language, or ability. Lessons are carefully planned to remove barriers to learning and to ensure that all pupils can engage meaningfully with scientific concepts and enquiry. Key ideas are broken down into manageable steps, with clear learning intentions and success criteria shared so pupils understand what they are working towards.

Adaptive teaching strategies are used routinely in science lessons to meet the needs of pupils with additional needs. These include the use of concrete resources, visual supports, structured practical activities, and pre-teaching of key vocabulary. Tasks are scaffolded where appropriate, and adults provide targeted support to help pupils access learning while maintaining high expectations and opportunities for challenge.

For pupils with English as an Additional Language (EAL), science lessons provide rich opportunities for language development alongside conceptual understanding. Scientific vocabulary is explicitly taught, modelled, and reinforced through visuals, hands-on investigation, talk, and repetition. Opportunities for discussion, paired work, and oral rehearsal enable pupils to develop confidence in using scientific language in a supportive environment.

Targeted interventions and flexible grouping are used where necessary to ensure pupils with additional needs make progress in science. Progress is closely monitored, and teaching is adapted in response to assessment and pupil needs. By valuing curiosity, celebrating effort, and promoting a culture where mistakes are seen as part of learning, we ensure that all pupils are supported to see themselves as capable and confident scientists.

Oracy

Oracy is a central part of learning in science, as it allows pupils to articulate their ideas, explain their thinking, and reason scientifically. In lessons, pupils are encouraged to discuss predictions, observations, and conclusions with their peers, using accurate scientific vocabulary. Structured talk activities, such as think-pair-share, group discussions, and debates, help pupils clarify their understanding and deepen their conceptual knowledge.

Science lessons provide regular opportunities for pupils to develop confidence in expressing their ideas orally. Pupils are supported to construct explanations, justify answers, and ask scientific questions. Teachers model precise scientific language and provide sentence starters or discussion prompts where needed, ensuring all pupils, including those with EAL or additional needs, can participate meaningfully in discussions.

Oracy in science also develops critical thinking and collaborative skills. By explaining their reasoning, listening to alternative viewpoints, and building on the ideas of others, pupils strengthen their understanding of scientific concepts and develop important communication and social skills. Regular opportunities to present findings, share investigations, or lead discussions help pupils gain confidence and fluency in using scientific language in both formal and informal contexts.