



Broadhempston Primary School

Science Curriculum Statement

At Broadhempston Primary School, we believe that science provides children with the knowledge and skills to understand the world around them and develop a lifelong curiosity about how things work.

Through practical investigations, observation and enquiry, pupils learn to ask questions, test ideas and draw conclusions based on evidence.

As a small rural school, we are fortunate to be surrounded by a rich natural environment that provides meaningful opportunities for scientific exploration. We encourage children to be curious, observant and reflective learners who develop an appreciation of the natural world and an understanding of the role science plays in everyday life. Our setting and regular Forest School experiences provide rich opportunities for children to observe, investigate and develop an appreciation of the natural world through first-hand scientific enquiry.

Our science curriculum inspires pupils to think critically, solve problems and communicate their ideas effectively. Through the study of biology, chemistry and physics, children develop a secure understanding of scientific concepts while learning how scientists use evidence to explain and improve the world around us.

We aim to nurture confident and responsible young scientists who understand the importance of sustainability, environmental stewardship and scientific innovation. Through engaging scientific experiences, children develop the knowledge, skills and curiosity needed to continue their scientific learning beyond primary school.

National Curriculum

At Broadhempston Primary School, our science curriculum enables pupils to:

- Develop scientific knowledge and conceptual understanding through the study of biology, chemistry and physics.
- Develop understanding of the nature, processes and methods of science through different types of scientific enquiry.
- Ask questions, make predictions and investigate scientifically.
- Gather, record and interpret data.
- Use evidence to draw conclusions and explain findings.
- Develop scientific vocabulary and communicate ideas effectively.
- Understand the uses and implications of science in the past, present and future.
- Appreciate the role of science in improving lives and understanding the world around us.

To achieve these aims, the curriculum is organised around two interconnected dimensions:

- Substantive Knowledge - the scientific concepts and knowledge pupils learn within biology, chemistry and physics.
- Disciplinary Knowledge - the skills and processes scientists use to investigate, evaluate evidence and develop understanding.

Pupils develop their understanding through the following areas of science:

- Plants
- Animals, including humans
- Living things and their habitats
- Evolution and inheritance
- Materials
- Rocks
- Light
- Sound
- Forces and magnets
- States of matter
- Earth and space
- Electricity

These areas are revisited throughout the curriculum to ensure pupils build secure knowledge and make meaningful connections between scientific concepts.

Curriculum design and delivery

As a small rural school, science is taught within mixed-age classes through a carefully planned two year rolling programme in KS1 and a four-year rolling programme in KS2. This ensures full coverage of the National Curriculum while enabling pupils to build progressively on prior learning and revisit key scientific concepts over time. While pupils may explore the same broad scientific themes, learning is carefully adapted to ensure that knowledge, concepts and enquiry skills are developed with increasing depth and sophistication across the year groups.

We have chosen the Kapow scheme as the foundation for our science curriculum because it provides a carefully sequenced progression of knowledge and skills while allowing teachers to respond to the needs, interests and experiences of our pupils.

Our curriculum is structured around a spiral model which enables pupils to deepen their understanding of scientific knowledge and enquiry skills throughout their primary education. This approach supports long-term retention and ensures that scientific concepts are revisited in increasingly sophisticated ways.

Through this approach, pupils:

- Build and revisit key scientific knowledge.
- Develop scientific enquiry skills through practical investigations.
- Strengthen their ability to observe, question and predict.
- Learn to interpret and evaluate evidence.
- Apply their learning to real-world situations and environmental issues.

We believe it is important that pupils understand that science is not just a body of knowledge but a way of understanding the world. Children learn how scientists investigate questions, test ideas and use evidence to develop explanations.

Our curriculum develops three interconnected forms of knowledge:

- Substantive knowledge - scientific facts, concepts and principles.
- Disciplinary knowledge - understanding how scientific knowledge is generated through enquiry and investigation.
- Procedural knowledge - the practical skills needed to carry out investigations safely and effectively.

These forms of knowledge are developed through practical experiences, investigations, discussion and observation, helping pupils develop confidence as scientists and independent learners.

Learning is further enriched through our annual Science Week, which provides opportunities for pupils to explore scientific concepts in greater depth, engage with real-world scientific issues and develop enthusiasm for science beyond the classroom. Learning is further enriched through workshops and visits led by external organisations, scientists and sustainability experts. These experiences provide opportunities for pupils to engage with real-world scientific issues, develop their understanding of environmental responsibility and apply their learning in meaningful contexts.

Progression

Our science curriculum is carefully sequenced to ensure that pupils develop increasing knowledge, skills and understanding as they move through the school. Through a spiral curriculum, children revisit key concepts and enquiry skills while developing greater accuracy, independence and scientific understanding. Progression is carefully mapped across our four-year rolling programme to ensure pupils revisit scientific concepts with increasing depth, complexity and challenge.

In the Early Years, children begin to explore the world around them through observation, investigation and play-based experiences. They notice patterns, ask questions and develop curiosity about living things, materials and natural phenomena.

In Key Stage 1, pupils begin to develop foundational scientific knowledge through first-hand experiences and practical investigations. They learn to observe closely, identify features, record findings and ask simple scientific questions.

As pupils progress through Lower Key Stage 2, they develop a deeper understanding of scientific concepts, make predictions and begin to use evidence to support their ideas. They explore relationships, identify patterns and record findings in increasingly systematic ways.

In Upper Key Stage 2, pupils become increasingly independent scientists. They plan enquiries, select appropriate methods, evaluate evidence critically and communicate conclusions using scientific vocabulary. They develop a secure understanding of the relationship between evidence and explanation and recognise how scientific knowledge evolves over time.

Throughout their time at Broadhempston Primary School, pupils develop scientific knowledge, enquiry skills and critical thinking. They learn to question, investigate and evaluate, building confidence in their ability to understand and explain the world around them.

This progression enables pupils to become curious, knowledgeable and scientifically literate young people who understand the value of science in everyday life and the wider world.

Personal development and wider curriculum links

Oracy - Science provides rich opportunities for pupils to develop their speaking and listening skills. Pupils are encouraged to:

- Ask scientific questions.
- Explain predictions and conclusions.
- Present findings from investigations.
- Engage in scientific discussions and debates.
- Use scientific vocabulary accurately.
- Justify ideas using evidence.

These experiences help pupils develop confidence in communicating scientific ideas clearly and effectively.

Outdoor Learning - Outdoor learning is an important part of our science curriculum. Through regular Forest School sessions and outdoor investigations, pupils develop their understanding of habitats, living things, seasonal change and environmental sustainability. Our rural setting provides opportunities for first-hand scientific observation, enabling children to develop curiosity, observation skills and an appreciation of the natural world.

Sustainability - Sustainability is woven throughout our science curriculum. Pupils explore environmental issues including climate change, biodiversity, renewable energy and conservation. Through our Eco Committee and whole-school Climate Action Plan, children develop an understanding of how individual and collective actions can contribute to a more sustainable future.

Critical Thinking - Science encourages pupils to question, investigate and evaluate evidence. Through practical enquiry, children learn to identify patterns, analyse results and draw conclusions based on evidence. These experiences help pupils become thoughtful and reflective learners who can make informed decisions.

Cultural Capital - Through studying scientific discoveries, significant scientists and technological advances, pupils develop an understanding of how science has shaped societies throughout history and across the world. The curriculum broadens horizons by introducing children to the diverse individuals and ideas that have transformed our understanding of the universe. Pupils also learn about the wide range of careers linked to science, technology, engineering and mathematics, helping them understand the relevance of science in the wider world.

Inclusion and Diversity - We believe that science should be accessible, engaging and inspiring for all pupils. Learning encourages children to:

- Explore the contributions of scientists from a wide range of backgrounds.
- Challenge stereotypes associated with science careers.
- Develop respect for different perspectives and ideas.
- Recognise the importance of diversity within the scientific community.

We are committed to ensuring that all pupils, including those with SEND, can access and succeed within the science curriculum through appropriate scaffolding, adaptive teaching and practical support.

Assessment

Assessment is an integral part of teaching and learning in science at Broadhempston Primary School. Teachers use ongoing assessment to identify what pupils know, understand and can do, and to inform future teaching.

Formative assessment takes place throughout lessons through:

- Skilled questioning and discussion.
- Observation of practical investigations.
- Review of scientific recording and outcomes.
- Retrieval activities that revisit previously taught knowledge.
- Pupil reflection and self-assessment.
- Peer discussion and feedback.

Assessment considers both scientific knowledge and scientific enquiry skills, ensuring pupils develop a secure understanding of scientific concepts alongside the ability to work scientifically.

Leaders and staff monitor the quality and impact of the curriculum through:

- Reviewing pupils' work.
- Pupil voice activities.
- Lesson visits and curriculum monitoring.
- Analysis of assessment information.

Through these approaches, we ensure that pupils build secure scientific knowledge and make strong progress throughout the curriculum.

CPD

High-quality teaching is essential to the successful delivery of our science curriculum. We recognise that strong subject knowledge and confidence enable teachers to support pupils in developing scientific understanding, enquiry skills and curiosity.

Teachers are supported through a range of professional development opportunities, including:

- Access to high-quality curriculum resources and lesson guidance.
- Clear progression documents showing how knowledge and enquiry skills develop across the school.
- Subject-specific knowledge and practical investigation guidance.
- Professional development materials and training resources.
- Collaboration with colleagues to share effective practice.
- Ongoing support and professional dialogue with subject leaders.

Our chosen curriculum resources support teachers in understanding how scientific knowledge builds over time and how pupils develop increasing confidence as young scientists.

Leaders continually evaluate the effectiveness of the curriculum through monitoring, pupil voice, staff feedback and professional development needs to ensure all pupils receive a high-quality science education.

Impact

By the time pupils leave Broadhempston Primary School, they will have developed a secure foundation of scientific knowledge, skills and understanding. They will be able to think scientifically, ask questions, plan investigations and use evidence to draw conclusions.

Pupils will understand key concepts across biology, chemistry and physics and will be able to apply their learning to explain phenomena in the world around them. They will use scientific vocabulary accurately and communicate their ideas with increasing confidence and precision.

The impact of our curriculum is evident in pupils' ability to think critically, work scientifically and apply their learning to real-world issues. As they progress through the school, pupils demonstrate increasing curiosity, independence and resilience as young scientists.

Science Week, Forest School experiences, workshops led by visiting experts, participation in national surveys and science projects, the work of the Eco Committee and engagement with our Climate Action Plan provide pupils with meaningful opportunities to apply their learning beyond the classroom and develop a sense of responsibility for the world around them.

Our pupils leave Broadhempston as curious, reflective and environmentally aware young people who value science, understand its importance in shaping the future and are well prepared for the next stage of their education and beyond.

Curriculum Progression Overview

Animals including humans

Year 1/2	Identify body parts, senses, offspring and life cycles.	Animals need food, water and air; humans need exercise, hygiene and balanced diets; five senses and body parts.
Year 3/4	Investigate skeletons, muscles, nutrition, digestion and teeth.	Skeleton provides support, protection and movement; food groups and balanced diet; digestive system and tooth functions.
Year 5/6	Explain circulation, heart rate and human development.	Heart, blood and vessels transport oxygen/nutrients; lifestyle affects health; puberty and human life cycle.

Plants

Year 1/2	Identify plants and observe growth.	Plant parts; seeds and bulbs germinate; plants need water, light and warmth.
Year 3/4	Investigate transport, reproduction and life cycles.	Roots, stems and leaves have functions; pollination, seed formation and seed dispersal.
Year 5/6	Compare plant reproduction processes.	Sexual and asexual reproduction sustain species and complete life cycles.

Living things and their habitats

Year 1/2	Explore habitats and simple food chains.	Habitats and microhabitats support survival; living, dead and never alive; simple food chains.
Year 3/4	Classify plants and animals.	Vertebrates/invertebrates; flowering/non-flowering plants; environmental change affects habitats.
Year 5/6	Explain adaptation and evolution.	Microorganisms, classification, adaptation and survival over time.

Materials

Year 1/2	Identify, compare and test materials.	Properties determine suitability; materials can be squashed, bent, stretched and twisted.
Year 3/4	Compare rocks and states of matter.	Rock properties and fossils; solids, liquids, gases and water cycle.

Year 5/6	Investigate mixtures and changes.	Solutions, solubility, separation techniques, reversible and irreversible change.
Forces		
Year 1/2	Explore pushes and pulls.	Forces change motion and shape.
Year 3/4	Investigate friction and magnetism.	Contact and non-contact forces; magnets attract and repel; friction varies by surface.
Year 5/6	Explain gravity and resistance.	Gravity, air resistance, water resistance and mechanisms such as gears and levers.
Light		
Year 3/4	Investigate sources and shadows.	Light is needed to see; shadows form when light is blocked.
Year 5/6	Explain reflection and vision.	Light travels in straight lines and reflects from surfaces.
Sound		
Year 3/4	Investigate how sounds are made.	Sound is caused by vibrations; pitch and volume depend on vibration.
Year 5/6	Apply understanding in wider contexts.	Distance affects loudness; insulation reduces sound transfer.
Electricity		
Year 3/4	Build simple series circuits.	Complete circuits require power sources; conductors and insulators.
Year 5/6	Use symbols and investigate voltage.	Circuit diagrams use standard symbols; voltage affects output.
Earth and space		
Year 5/6	Model solar system movement.	Sun-centred solar system; orbit, seasons, day and night.

Evolution and inheritance

Year 5/6	Use evidence to explain adaptation.	Fossils provide evidence; variation, inheritance and evolution.
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Working scientifically

Year 1/2	Ask questions, observe and measure.	Use simple enquiries, tables and pictograms to answer questions.
Year 3/4	Plan tests, identify variables and analyse patterns.	Fair testing, data collection and evidence-based conclusions.
Year 5/6	Design enquiries and evaluate reliability.	Accuracy, repeatability, anomalies and scientific validity.