



Science

Intent

At **Bank End Primary Academy**, our science curriculum is designed to provide pupils with a deep, coherent understanding of the key scientific disciplines—**biology, chemistry, and physics**. Using the National Curriculum as our foundation, we have built a progressive model centred on the '**Big Ideas of Science**', ensuring pupils can make sense of complex scientific concepts and are well-prepared for Key Stage 3 and beyond.

Through a clearly defined framework, our curriculum develops:

- **Scientific Attitudes & Planning:** Encouraging children to ask meaningful questions and design effective investigations.
- **Measuring & Observing:** Teaching accurate use of equipment such as rulers, thermometers, and timers while making systematic observations.
- **Recording & Presenting:** Supporting pupils in collecting and displaying data using charts, graphs, and tables.
- **Analysing & Evaluating:** Developing the ability to interpret data, form conclusions, and evaluate the reliability of results.

We aim for every pupil to develop the **procedural fluency** needed to think, work, and act like a scientist. Our curriculum fosters awe and curiosity about the natural world while ensuring that all children see themselves reflected in science—highlighting diverse role models and addressing the cultural and societal dimensions of scientific discovery.

Implementation

In the **Early Years Foundation Stage**, pupils begin their scientific journey by making sense of the natural world through observation, exploration, and interaction with regularly updated science investigation areas and thoughtfully planned provocations linked to their interests.

In **Key Stages 1 and 2**, our curriculum carefully sequences both substantive and disciplinary knowledge. We revisit core concepts regularly to deepen understanding and avoid misconceptions. Pupils build strong connections across scientific disciplines, other curriculum subjects, and real-world contexts.



Key features of our implementation include:

- **Cross-curricular coherence:** Content is aligned with mathematics and geography to reinforce and apply knowledge across subjects. For instance, bar charts are taught in maths before they're used to present scientific data.
- **Purposeful practical work:** Investigations are intentionally designed to demonstrate core scientific concepts or to allow pupils to practise scientific skills in context.
- **Knowledge organisers:** Each unit includes key vocabulary and essential knowledge that all children are expected to master.
- **Evidence-based approaches:** Our teaching is informed by cognitive science, including **spacing**, **interleaving**, and **retrieval practice**, to ensure learning is embedded in long-term memory.
- **Clarity of purpose:** Lessons are built around clear outcomes and concise learning intentions.
- **Immersive learning:** Use of our immersive classroom brings scientific learning to life, allowing pupils to experience the curriculum in tangible ways.
- **Inclusive teaching:** Lessons are scaffolded to support all learners. Teachers use the *Science Four Broad Areas of Need* document to meet individual needs, in consultation with the Science Lead and SENCO.
- **Professional development:** Teachers access termly CPD to ensure expert delivery of the curriculum.

Each unit of science learning also includes:

- Explicit teaching and practice of **disciplinary knowledge** (working scientifically).
- Co-operative learning through **Kagan structures** to enhance engagement and accountability.
- Exploration of **STEM careers** and interactions with scientists and professionals.
- **Educational visits**, visiting experts, and the use of artefacts to enrich learning.



- **Classroom working walls** that showcase key vocabulary, prior/current/future learning, and links to our sustainability curriculum.
- Rich **questioning** strategies that support consolidation and application of learning.
- Representation of **diverse role models**, showcasing scientists from a range of backgrounds.

Impact

Our science curriculum is high-quality, well-sequenced, and demonstrates clear progression across year groups. Pupils at **Bank End Primary Academy** become increasingly critical and analytical thinkers. They are able to form hypotheses, test their ideas, and draw evidence-based conclusions. Most importantly, they develop a lifelong **curiosity about the world**, underpinned by strong knowledge in biology, chemistry, and physics.

Our curriculum is **ambitious** for all learners. If pupils are keeping up with the demands of the lesson, they are making good or better progress. We measure impact through:

- **Pre-learning quizzes:** Identifying readiness and addressing gaps before new learning begins.
- **Reflections against planned outcomes:** Ensuring pupils meet the intended learning goals.
- **Low-stakes quizzes:** Promoting retrieval and long-term retention.
- **Pupil books and learning conversations:** Showcasing understanding, progress, and curiosity.
- **Scholarly writing:** Providing opportunities for extended scientific writing at the end of each unit.
- **Continuous assessment:** Teachers interact with pupils throughout lessons, offering actionable, precise feedback that pupils respond to.
- **Long-term recall:** Built-in reviews assess whether learning is retained over time.



Our science curriculum also actively promotes **cultural capital**, particularly for our most disadvantaged pupils. We enhance learning through **guest speakers**, **STEM weeks**, and **real-world fieldwork** such as farm visits and woodland exploration. These experiences help develop the **knowledge and skills needed to succeed in school and beyond**, while showing children that science is for everyone.