Colham Manor Primary School

Aspire, Achieve, Thrive

Science Policy

Last updated: 20th May 2025

'Science at Colham Manor is investigative and exploratory. Children build a sense of curiosity and excitement through stimulating questions and investigations; a fundamental aspect of scientific learning. We aim to develop a love for science and a lifelong fascination for the subject.

Purpose:

The purpose of this policy is to describe our practice in Science and the principles upon which this is based.

Aims:

This policy is set out to ensure consistency in the teaching and learning within Science across the school in order to ensure pupils are equipped with the ability to explore, discover and investigate. These first-hand experiences will in turn enable them to understand more about that world that we live in. We aim to ensure such experiences will be appropriate, relevant, challenging and satisfy the children's curiosity.
We aim to:

- Build on the children's natural curiosity.
- Teach the children scientific knowledge.
- Teach the children scientific skills.
- Stimulate them to investigate, question and develop attitudes of science.
- Teach them to communicate ideas using appropriate scientific language.
- Teach them how to evaluate their findings and suggest explanations.

This policy supports our school mission statement of: 'aspire, achieve and thrive'.

The Intent, the Implementation and the Impact of our Science Curriculum

The Intent:

At Colham Manor Primary School, we believe that a high-quality science education provides the foundations for understanding the world through the specific disciples of biology, chemistry and physics. We believe that science is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Pupils should be encouraged to recognise the power of key knowledge, key vocabulary acquisition and develop a sense of excitement and a curiosity of the world around them. Children should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave and then analyse the causes.

Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying process skills. Children will be immersed in scientific vocabulary, which aids children's knowledge and understanding not only of the topic they are studying, but of the world around them. We intend to provide all children regardless of their ethnic origin, genders, class, aptitude or disability, with a broad and balanced science curriculum. The teaching staff at Colham Manor Primary School ensure that all children are exposed to high quality teaching and learning experiences, which allow children to explore their outdoor environment and locality, thus developing their scientific enquiry and investigative skills.

The Implementation:

To meet the aims of the National curriculum for science and in response to the Ofsted research review: science, our curriculum has identified the following key strands:

- Scientific knowledge and understanding of:
    - biology: living organisms and vital processes;
    - chemistry: matter and its properties;
    - physics: how the world we live in 'works'.

- Working scientifically: processes and methods of science to answer questions about the world around us.

- Science in action: uses and implications of science in the past, present and for the future.

We implement a spiral curriculum, with essential knowledge and skills revisited with increasing complexity, allowing pupils to revise and build on their previous learning. A range of engaging recall activities promotes frequent pupil reflection on prior learning, ensuring new learning is approached with confidence. The Science in action strand is interwoven throughout the scheme to make the concepts and skills relevant to pupils and inspiring for future application. Cross-curricular links are included throughout each unit, allowing pupils to make connections and apply their science skills to other areas of learning.

Each unit is based on one of the key science disciplines: biology, chemistry and physics. The National curriculum content has been grouped into six key areas of science to show progression throughout the school:

Plants.
Animals, including humans.
Living things and habitats.
Materials.
Energy.
Forces, Earth and space.

Pupils explore knowledge and conceptual understanding through engaging activities and an introduction to relevant, specialist vocabulary. As suggested in Ofsted research review: science (April 2021), the Working scientifically skills are integrated with conceptual understanding rather than taught discretely to provide frequent but relevant opportunities for developing scientific enquiry skills. The scheme utilises practical activities that aid in the progression of individual skills and provide opportunities for full investigations.

In EYFS (Reception), pupils build a solid foundation for science before transitioning to Key stage 1. Through hands-on exploration and focused observations, teaching sparks curiosity and fosters an early appreciation for the natural environment, paving the way for more structured scientific learning in Key stage 1.

Each year group has an optional exploratory unit called 'making connections' that delves beyond the statutory curriculum. This unit assimilates prior knowledge and skills to evoke excitement and provide an additional method of assessing scientific attainment.

Lessons incorporate various teaching strategies, from independent tasks to paired and group work, including practical, creative, computer-based and collaborative tasks. This variety means that lessons are engaging and appeal to those with different learning styles. In Year 1, the transition into the Key stage is eased by providing a selection of activities: some adult-led, some independent tasks and some that can be used during continuous provision.

Guidance for adapting the learning is available for every lesson to ensure that all pupils can access it and opportunities to stretch their learning are available when required. Knowledge organisers for each unit help to identify key learning and vocabulary and can be useful as an adaptive teaching tool or to revise learning from the unit. Strong subject knowledge is vital for staff to deliver a highly effective and robust science curriculum. Each unit of lessons includes teacher videos and resources to develop subject knowledge, target fundamental misconceptions effectively and support ongoing CPD. Our scheme of work has been selected to build confidence amongst teachers who are required to deliver and assess the full science curriculum and maximise pupil progression. Videos created by subject specialists feature troubleshooting advice for practical work that does not go to plan, suggested questioning and support for tackling misconceptions and recordings of practical tasks that can be utilised as demonstrations in the classroom or to support pupil reflection on their own observations.

The 'National curriculum coverage' document shows which of the units cover each of the National curriculum attainment targets and the strands within them.

The 'Progression of skills and knowledge' shows the skills and key knowledge taught within each year group and how these skills develop year on year to ensure attainment targets are securely met by the end of the key stage.

The Impact:

The impact of our science curriculum can be constantly monitored through both formative and summative assessment opportunities. Each lesson includes guidance to support teachers in assessing pupils against the learning objectives and any relevant scientific enquiry skills. Furthermore, each unit has a unit quiz and a knowledge and skills catcher, which can be used at the beginning or end of the unit to provide a summative assessment. Opportunities for pupils to communicate using scientific vocabulary will also form part of the assessment process in each unit.

Pupils should leave school equipped with the requisite skills and knowledge to succeed in science at Key stage 3. They will have the necessary tools to confidently and meaningfully question and explore the world around them and critically and analytically experience and observe phenomena. Pupils will understand the significance and impact of science on society.

The expected impact of our Science scheme of work is that pupils will:

- Develop early scientific thinking skills through hands-on exploration and sensory experiences in EYFS (Reception).
- Develop a body of foundational knowledge for the biology topics in the National curriculum: Plants; Animals, including humans; Living things and their habitats; and Evolution and inheritance.
- Develop a body of foundational knowledge for the chemistry topics in the National curriculum: Everyday materials; Uses of everyday materials; Properties and changes of materials; States of matter; and Rocks.
- Develop a body of foundational knowledge for the physics topics in the National curriculum: Seasonal changes; Forces and magnets; Sound; Light; Electricity; and Earth and space.
- Evaluate and identify the methods that 'real world' scientists use to develop and answer scientific questions.
- Identify and use equipment effectively to accurately gather, measure and record data.

- Be able to display and convey data in a variety of ways, including graphs.
- Analyse data to identify, classify, group and find patterns.
- Use evidence to formulate explanations and conclusions.
- Demonstrate scientific literacy through presenting concepts and communicating ideas using scientific vocabulary.
- Understand the importance of resilience and a growth mindset, particularly in reference to scientific enquiry.
- Meet the end of key stage expectations outlined in the National curriculum for science.

Science is assessed through teacher assessment against the curriculum objectives. Science should be completed in class floor books and should have appropriate feedback that is outlined in the 'Feedback and Marking Policy'.

Assessment in science should be in line with our 'Assessment Policy'. The assessment of science in our school is through teacher assessment by observation and careful judgement of class work and discussion. Teachers may choose to assess children more formally but this is at their own discretion.

Science should also be assessed summatively and termly on insight. Data uploaded onto Insight by the class teacher on the completion of each science topic and any assessments made are used to inform the following half terms' planning.