



Subject Leader Report: Science

'Our Vision is for every child to love learning, be compassionate and achieve now and in the future. Working together with our communities, we will give our children roots to grow and wings to fly.'

Our Aims in Science

At Portsdown we aim to develop a love for science. We believe that a high quality Science education provides the foundations for understanding the world around them. We aim to develop children's scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. We will develop their understanding of the processes that scientists use to help them answer scientific questions. A good understanding of the basic principles and a desire to question and explore why things happen and how things work will give our pupils a good base from which to build upon in the next stage of their education and into their adult lives. Children will be encouraged to develop a sense of 'awe' and 'wonder' about the world around them, and to begin to understand how Science has changed our lives and continues to do so. Children will work collaboratively with adults and their peers to ask questions and answer them by carrying out a range of scientific enquiries. Using their growing knowledge, children will be able to predict what they might find out, explain what is occurring, and analyse their findings, making links to knowledge that they already have.

Planning and Teaching

Our Science planning is based on the National Curriculum 2014 with each year group following the units as set out in the document below. All units of learning in Science will contain aspects of the 'Working Scientifically' strand, with children building these skills from Early Years up to Year 6. Knowledge organisers are used to assist teachers when planning science units and suggest a sequence of learning, key vocabulary and key texts/videos. Children knowledge organisers are glued into children's science books at the start of a new unit and referred back to throughout the unit to support key scientific concepts. Key vocabulary that needs to be taught and used by the children is included on both knowledge organisers. This vocabulary is revisited and built upon from year to year.

Disciplinary knowledge

Enquiry Skills	Enquiry Approaches
Asking questions Evaluating Interpreting and communicating results Making predictions Observing and measuring Recording data Setting up tests	Comparative fair testing Identifying, grouping and classifying Observation over time Pattern seeking Problem solving Research

Substantive Knowledge

Substantive knowledge in primary science refers to the core facts, concepts and scientific content that pupils are expected to learn and remember. It includes key ideas such as states of matter, forces, plants, animals, habitats, light, sound, Earth and space. Substantive knowledge builds pupils' understanding of the natural world and provides the foundation for working scientifically. It involves knowing scientific vocabulary, recognising patterns, and understanding cause and effect. By securing this knowledge, pupils can explain phenomena, make connections between topics and apply their learning in new contexts, supporting progression towards deeper conceptual understanding in later stages of science education.

Assessment

Ongoing assessment and reviews allows teachers to make judgements with regards to attainment and understanding within lessons, to adapt future lessons to suit the needs of pupils and to plan for support or further challenge. Use of activities such as concept cartoons, mind-mapping and quizzes are being used more frequently at the beginning of a new unit to assess the children's prior knowledge and vocabulary. Likewise, assessment activities are being used formatively within every lesson help identify those needing support or challenge. End of unit summative assessments are carried out by teachers and recorded centrally.

Monitoring the Quality of Teaching and Learning

The quality of teaching and learning in Science is monitored by the subject leaders. This is done via pupil interviews, book looks, teacher discussions and by looking at planning throughout the year to ensure the curriculum is being covered.

Wider Enrichment Opportunities

Teachers make links between Science and Math, and use the children's mathematical skills to take measurements and present their data from scientific enquiries. They may use their

computing skills to do this too. Trips and visits have enriched the curriculum across all key stages. In early years, they have visited Staunton Farm and had watched chicks hatch from eggs. Year 1 have visited QE country park and Staunton Country Park to explore and investigate plants and seasonal changes. Year 2 have visited Testwood lakes to explore plants and go pond dipping. Year 3 have visited Marwell Zoo to explore how animals adapt to their environments. Year 4 went on a mini-beast hunt in our local area. Y5 have visited the Winchester Science Museum to explore Earth and Space and experienced a planetarium workshop. Y6 dissected lamb hearts to identify and explore the functions of a heart. The whole school took part in British Science Week with a theme of 'Time'. During the week some children from Year 5 attending a workshop at UTC and some children in year 2 attended a Mini Professors workshop.

Targets for 2025-2026

- To ensure children demonstrate understanding of disciplinary knowledge (skills in scientific enquiry, reasoning and analysis) through enquiry based learning. Remind and re-introduce symbols to staff and introduce symbols to children.
- Formative and summative assessments are being used as a tool to address misconceptions, plug gaps in children's knowledge and challenge scientific understanding
- To ensure enrichment opportunities are closely matched to the substantive knowledge and disciplinary knowledge

Targets for 2024-2025

- To continue to develop the range of enrichment opportunities by liaising with UTC and the Ogden Trust.
- To ensure children demonstrate understanding of both substantive knowledge (core scientific facts, concepts) and disciplinary knowledge (skills in scientific inquiry, reasoning, and analysis) through enquiry-based learning.
- To continue to embed reading to learn in Science

Evidence Examples 2024-2025

