TOTLEY ALL SAINTS CE PRIMARY SCHOOL

Science Policy

Subject leader: Tracy Soar

Last reviewed: February 2024

Next review due by: February 2026

THE DIOCESE OF SHEFFIELD ACADEMIES TRUST

Intent

THE TASS COMMUNITY: GROWING AND LEARNING TOGETHER

'At Totley All Saints Church of England Primary School, we aim to be an exceptional school with Christian values at the very heart of the community. We are committed to providing an environment where every child can thrive & is supported to achieve their unique & amazing potential as a child of God.'

"I have come that they may have life, and have it to the full."
John 10:10

Rationale and Aims

At Totley All Saints, we want our children to be excited and curious about the world around them, so that they are inspired to think about science in a meaningful and responsible way throughout their lives. We support and nurture all children with their understanding of how science has changed our lives and is vital to the world's future prosperity, giving them the ability to recognise the power of rational explanation. Through our teaching of science, we strive to develop an understanding of natural phenomena and to inspire a keen interest in finding out why things happen in the way they do.

Aims

We aim to:

- Foster a love of science and its value in the wider world.
- Develop a questioning and reflective mind by providing a range of exciting and enjoyable activities.
- Develop a systematic and logical way of working.
- Enable children to apply their skills and knowledge to investigative work.
- Support children to come to a deeper understanding of scientific concepts.
- Promote safe, careful and collaborative work.
- Encourage resilience and independence, through which children can discover patterns and consider connections.
- Enable children to express themselves confidently and fluently using the correct scientific vocabulary.
- Ensure that children are well equipped with the building blocks needed to continue their learning journey beyond primary school.

Approaches to Teaching Science

Our science curriculum is designed to teach methods of enquiry and investigation in order to simulate creative thought. Children learn to ask scientific questions and begin to appreciate the way science will affect their future on a personal, national and global level. We want all children to understand and apply the fundamental principles and concepts of science, so that they can understand the world through the specific disciplines of biology, chemistry and physics.

We follow the National Curriculum sequence and content, using evidence-led practice that is enriched with retrieval studies to ensure long-term retention of key knowledge. The foundations of science are cemented in the EYFS through learning within the Natural World, and People, Culture and Communities. Our science curriculum places knowledge, vocabulary, working and thinking scientifically at the heart of our

principles, structure and practice. This enables pupils to become ‘a little more expert’ as they progress through the curriculum; accumulating, connecting and making sense of the rich substantive and disciplinary knowledge. Science is blocked, so that children can become fully immersed in each unit, over one or two weeks.

The school uses a rich variety of teaching styles to match the different learning styles of pupils, and to ensure that lessons are active and engaging. This includes whole-class and group direct teaching, individual, pair and group work. Our lessons follow the Teach Simply model of review, teach, practise, apply. All children are given tasks to review prior learning, develop vocabulary and learn key knowledge and skills at points throughout each lesson or unit of work, using the teach-task format. This helps to keep the pace of learning sharp as well as ensure that all pupils are supported throughout. All children are given regular opportunities to apply their knowledge to deeper thinking tasks. These are carefully designed to challenge all children, including those working at greater depth. Lessons are talk rich and pupils are taught and expected to use the correct vocabulary. This supports them to structure their discussions with talk partners using the think-pair-share format. Visualisers and knowledge notes are used to model key concepts and lessen cognitive load. Teaching assistants are used in a variety of ways to support all pupils learning.

Working Scientifically

Scientific enquiry is taught through the programmes of study. Pupils learn to use a variety of approaches to answer relevant scientific questions by collecting, analysing and presenting their findings. Children will use a balance of the following types of enquiry throughout each year. They are classified as:

I = Identifying and classifying

P = Pattern seeking
R = Research using secondary sources
O = Observing
F = Fair and comparative testing

Through this approach we aim to develop the following skills:

- observing over time
- asking questions
- predicting, hypothesising and planning
- controlling factors (dependent and independent variables)
- measuring and collecting information
- recording and interpreting data by constructing tables and graphs
- explaining, communicating and evaluating findings
- researching information

The progression of skills can be seen in more detail in our science curriculum documents.

Resources and Environment

All classes use the Curriculum with Unity Schools Partnership (CUSP) scheme of learning to structure their planning. Additional resources are used to supplement this scheme, such as video clips and the Curriculum Visions online library. Knowledge

notes, knowledge organisers, vocabulary tasks, visualisers and quizzes are used in all Science lessons. A selection of these is displayed in the classroom to support teaching for each unit.

Assessment

Our science assessment is a continuous process, to monitor and evaluate the impact of teaching and learning. Assessment makes use of informal observations and both formative and summative judgements. Teachers make assessments of pupils in every lesson through:

- regular marking and high-quality feedback
- analysing errors and picking up on misconceptions
- asking questions and listening to answers
- facilitating and listening to discussions
- making observations
- regular quizzes to review understanding
- retrieval tasks to recap on prior learning

This ongoing formative assessment is used to structure short term planning. Lessons are adapted to address misconceptions and give additional support/consolidation/ challenge as appropriate.

Pupils are assessed annually against National Curriculum year group expectations, which is shared with parents in our annual reports.

Pupils with SEND

The CUSP curriculum supports all pupils by using regular oral rehearsal of key concepts. This allows pupils with SEND to formulate and practise responses before recording or writing them down. Knowledge notes chunk learning into manageable sections, and pupils are encouraged to highlight vocabulary and annotate key points. Alternative ways of recording, for example using flowcharts and pathways, enable pupils to record and verbally share their knowledge and understanding, removing the pressure of extended writing. Pupils identified on the SEND register are assessed annually against National Curriculum age related expectations.

Enrichment Opportunities

We run a STEM club each year in school, which is available to all pupils in Key Stage 2, and science learning is shared regularly with parents using ClassDojo. British Science Week is celebrated each year with a range of interactive activities, assemblies and investigations. Wherever possible, our science curriculum is enhanced with visits and visitors to school.

Arrangements for monitoring standards of teaching and learning in Science

The science subject lead, as part of the Senior Leadership Team, monitors science within the school, through the analysis of drop-in lesson observations, work sampling and pupil interviews. This information feeds into the school's self-evaluation process, to ensure that science continues to develop and adapt where appropriate.