

English Martyrs' Catholic Primary School



Science Policy

Our Mission

Our children are all unique, beautiful **individuals** but together we are a **masterpiece**, brothers and sisters in **Christ**.

As witnesses of Christ, working together as a **Team**, we strive to promote the **Gospel Values** and Teachings of Jesus by providing a **caring, stimulating environment**, with **nurture, trust, love** and **tolerance** through our spirituality, learning and play. By making connections with Jesus, we promote **high ambitions** and **confidence** to achieve our goals.

“A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and 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. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.”

National Curriculum 2014

Intent

At English Martyrs’ Catholic Primary School, we strive to be a caring, sharing and friendly school by treating every stakeholder as equals regardless of creed, background or social standing. Within our curriculum, we ensure all children are prepared for life, with the skills they need to achieve, aspire and accomplish; meeting every child’s potential and their needs. At English Martyrs’ this includes meeting the needs of a very mixed community representing a broad range of socio-economic circumstances: a significant proportion of children with high needs and are disadvantaged; children living in high social deprivation, asylum seekers, vulnerable children and families who seek security and safety in our school family.

Our **Intent** for the core curriculum in Science is to ensure that all pupils:

- ...providing exciting opportunities for children to explore their Scientific talents.
- ...provide the cultural capital needed so that children are well placed for future positive outcomes.
- ...providing all children with bespoke and tailored opportunities to ensure their Scientific needs are met regardless of starting point.
- ...developing children’s skills in scientific enquiry and exploration from the outset.
- ...giving opportunities to use Science across the curriculum at all stages and phases.
- ...providing bespoke, exciting and engaging activities, projects and experiences for children to explore scientifically, including the use of digital technologies to support their learning and enjoyment.
- ...providing challenge for all so that all children have the opportunity to reach their potential.
- ...providing opportunities to share knowledge, skill and understanding of basic with others.
- ...using the wider community and environment to develop scientific skill, knowledge and understanding.
- ...providing a variety of mediums to explore the world in order to enhance learning and understanding.
- ...providing tailored support for children at all standards in development so that they can thrive.
- ...providing a range of opportunities for children to experience the living world.
- ...preparing our children for life in an increasingly scientific and technological world.
- ...fostering concern about, and active care for, our environment.
- ...helping our children acquire a growing understanding of scientific ideas.
- ...helping develop and extend our children’s scientific concept of their world.
- ...developing our children’s understanding of the international and collaborative nature of science.

Implementation

At English Martyrs' these intentions will be Implemented by:

EYFS Programme of Study – Understanding the World

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

Early Learning Goals: The Natural World:

Children at the expected level of development will:

- Explore the natural world around them, making observations and drawing pictures of animals and plants;
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Pupils in Key Stage 1:

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

'Working scientifically' is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Pupils in Lower Key Stage 2 (Years 3 and 4):

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

‘Working scientifically’ is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.

Pupils in Upper Key Stage 2 (Years 5 and 6):

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

‘Working and thinking scientifically’ is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read, spell and pronounce scientific vocabulary correctly.

Planning

There is a programme of study for Science in place from Year 1 through to Year 6 that is taught throughout our school. All year groups have been given areas of study linked to the National Curriculum expectations. We do not work to a Scheme of Work in Science rather class teachers use the KLIPS published by Lancashire County Council together with a range of resources to ensure the curriculum is creative, broad and balanced and for cross curricular links to be made with all other subjects.

Knowledge and Skills in the Foundation Stage are planned through the objectives within the EYFS.

Teachers from Foundation Stage to Year 6 will plan to ensure full coverage of the knowledge and skills relating to the Science curriculum for that year group throughout the year through the use of the KLIPS. Teachers will plan before the start of each new theme, and at this point highlight the knowledge and skills that will be covered.

Early Years Foundation Stage

Understanding the World is one of four specific areas within the seven areas of learning and development in the EYFS Curriculum 2021. Staff will plan activities and experiences throughout the year which allow children to access the statutory education programmes within the Early Years Framework. Staff recognise that EYFS progress is not linear and therefore themes will be readdressed many times, in different ways whilst learning in our Early Years Unit at English Martyrs'. Teaching staff will complete observations of children against our chosen assessment tool, Birth to Five Matters. The Early Learning Goals for the Natural World are set out in the Early Years Statutory Framework and are the aim for all children finishing their Reception year. Teaching Staff in Key Stages will be able to refer to information from the Foundation Stage Profiles/End of Year Reports and information passed on by previous teacher, to ascertain where the children are at and plan to build on these experiences accordingly. Assessment is a planned part of all effective teaching and learning.

Equal Opportunities and Inclusion

Inclusion in Science means that all children have access to and are given confidence in all areas, regardless of race, gender and ability. We should aim to create an environment in which all children learn to respect and value each other and each other's interests. This can be achieved by employing the following strategies:

- Mixing groups in terms of gender and ability.
- Structuring activities so all are fully involved.
- Giving all the children an opportunity to share their work.
- Considering the needs of children with physical or learning difficulties and taking the necessary steps (by enlisting extra help, adapting equipment or differentiating tasks) to ensure they have equal access to the curriculum.
- Considering ways in which to support EAL children. For instance, simplifying language, using other children to translate, or demonstrating rather than speaking.

- Recognising the need to extend more able pupils and refer them to the STEAM Curriculum Team so that they may then be guided to broaden their knowledge, skill and development.

Health and Safety

Children should be working in a safe environment, both in and out of the classroom. When using Scientific equipment or resources for an investigation, an appropriate Risk Assessment must be carried out and they should be supervised at all times. When conducting fieldwork, children should be properly supervised and should be made aware of any potential danger such as busy roads, litter or water hazards, again as part of a formal Risk Assessment.

Staff Development

- The STEAM Curriculum Team will have access to specific training to support and develop their role.
- All staff will be encouraged to attend courses and review resources alongside the STEAM Curriculum Team.

Impact

The STEAM Curriculum Team will measure Impact of the implementations of the Science curriculum in collaboration with class teachers and SLT through:

Record Keeping, Assessment and Reporting

As in all other areas of the curriculum, assessment is an integral part of the teaching process.

Formative and summative assessment is used to guide the progress of individual pupils in Science. It involves identifying each child's progress in each aspect of the curriculum, determining what each child has learned and what should therefore be the next step in their learning. Formative assessment is mostly carried out informally by the teachers in the course of their teaching and should be based on the identified assessment opportunities, informed by the KLIPS. This may be by way of questioning, feedback, plenary opportunities, peer review or group work (not an exhaustive list). It should be used to assess gaps in knowledge and skills and to identify children capable of deeper learning.

In addition, summative assessments should be used as appropriate at the end of each unit to ascertain gaps in knowledge and/or skills. These may take the form of quizzes, formal assessed work or knowledge tests. The assessments should cover both the knowledge required and working scientifically.

Knowledge maps for each unit should be shared and the learning discussed with children and revisited every lesson to build on the previous learning and assessment grids should be used throughout and at the end of every unit of work to assess all pupils individually. The outcomes of the assessment should be used to plan for future work to ensure there are no gaps in knowledge and skills and/or to plan interventions for individual pupils.

Children's progress in Science is reported to parents through the pupil annual report and termly consultation meetings in the Autumn and Spring terms.

Monitoring

Teaching and Learning for Science is monitored by the STEAM Curriculum Team. Evidence of work is required from each year group and a sample of work is collected and filed as evidence. Planning will also be moderated to ensure that the knowledge and skills are being covered and taught in a progressive way throughout the school.

Curriculum Team responsible: STEAM Team

Policy written: November 2022

Policy agreed by Governors: November 2022

Review Date November 2023 or sooner in light of new initiatives and developments.