St. Francis Xavier's RC Primary School

Love one another as I have loved you.

Science Policy

Our Mission

Share God's love with one another

Follow your dreams

E**x**cel in citizenship

Our Mission is to:

- Be a witness to the values, teaching and beliefs of the Roman Catholic Church
- Promote achievement and enjoyment for all
- Expect the best for individuals
- Inspire learning
- Collaborate with the community
- Promote a healthy and safe life style
- Create a sustainable school
- Continually strive to be effective

Intent, Implementation and Impact:

At St Francis Xavier's School, we understand the crucial role we have in teaching children about the world in which they live. It is our intent that this learning will equip them for life beyond the classroom and as global citizens. As science links direct to practical experience with ideas, it can engage learners at many levels. It intends to stimulate a child's curiosity in finding out why things happen in the way they do. It teaches methods of enquiry and investigation to stimulate creative thought and knowledge. Children learn to ask scientific questions and develop an understanding of natural phenomena. Through science, pupils understand how major scientific ideas contribute to our lives. The development of science skills and knowledge is important in preparing all pupils for citizenship in a technological world where they can question and discuss science-based issues that may affect their lives, the direction of society and the future of the world.

Intent:

The intent of our science curriculum is to enable children to:

- develop an everyday application of scientific knowledge in the world around them.
- develop a respect for all living things and the environment and an understanding of their interdependence.
- promote the learning of skills and knowledge, understanding and key vocabulary through a scientific attitude to the solving of problems.
- develop the skills of experimenting, devising and carrying out investigations and testing hypotheses by means of fair tests.
- communicate and record information following practical observations.
- promote confidence in the safe use of appropriate scientific equipment.
- use computing skills to collect, display and analyse data.
- encourage the ability to make predictions and suggest explanations based on an understanding of the world around them and scientific knowledge.
- develop an ability to understand and interpret scientific information presented in verbal, mathematical, diagrammatic or graphic form.

Implementation:
Our principal aim is to develop pupil's knowledge, understanding and skills. We achieve this by providing the children with a broad, balanced and creative curriculum. In addition, we employ a variety of teaching strategies to allow our pupils to develop their scientific understanding and skills.
Sometimes we do this through whole-class teaching, group or partner work and at other times we engage the children in enquiry-based research activities. We encourage the children to ask, as well as answer, scientific questions. They have the opportunity to use a variety of data, such as statistics, graphs, pictures, and photographs. They use computing skills in science lessons where it enhances their learning.
We recognise that pupils have different learning styles and we take this into account when planning and delivering a creative science curriculum. Pupils will therefore experience a range of learning activities including

- Questioning
- Role-play
- Discussion
- Experimentation
- Model making
- Writing
- Drawing
- Problem solving activities
- Off and on-site activities led by experts

Wherever possible we try to make the learning of science realistic and make links with our wider topic work. This gives the learning a clear context and purpose enabling the knowledge to be transferred into the long-term memory, thus avoiding simply memorising facts.

We recognise that there are children of widely different scientific abilities in all classes, and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways by:

- teaching science as creatively as possible so the use of colour, texture and visual material enhances learning.
- setting common tasks which are open-ended and can have a variety of responses.
- using task design to promote recall of key concepts taught within the lesson and promoting higher order thinking.
- setting tasks of increasing difficulty (we do not expect all children to complete all tasks).
- grouping children by mixed ability providing scaffolding where necessary using adaptive teaching.
- using teaching assistants to support the work of individual children or groups of children.

Evidence of the children's learning experiences is captured using photographic evidence. In Reception this may be recorded as an observation on Tapestry or recorded in the class learning journey book. Children in Year 1 record their work within group books whilst Year 2 and those in Key-Stage Two use individual science books.

Science displays are created throughout the year in each classroom providing topic vocabulary, pupils' work, and key knowledge. 'Rocks' (Remembering our curriculum knowledge and skills) cards are displayed so that the children have plenty of opportunities to revise and recap key knowledge for their topic.

Science curriculum planning:

The school uses the National Curriculum 2014 for science as the basis of its curriculum planning. The curriculum is rooted in knowledge and skills, planned carefully to ensure coherence and sequence so that new knowledge is built upon prior knowledge and there are clear end points.

We plan our curriculum in three phases. We agree a long-term plan for each year group. This indicates what topics are to be taught in each term. We review our long-term plan on an annual basis. The long-term plan maps the scientific topics studied in each term during the key stage. To support the long-term plan and provide knowledge and skills and concept progression throughout the school, St Francis Xavier's have developed Unit Plans. These list all the concepts, high quality texts, knowledge and skills needed to deliver the medium-term plans. Our medium-term plans then provide clear guidance on the knowledge, skills, teaching strategies and assessment for learning that we use when teaching each area and lesson of the curriculum. Science planning, both whole school and year group specific, is all held in a designated folder on the shared staff network.

We plan the topics in science so that they build upon prior learning. We ensure that there are opportunities for all children to develop their skills and knowledge in each unit and we also build progression into the science scheme of work, so that the children are increasingly challenged as they move up through the school. Our four concepts in science are: living things and their habitats, earth and space, physical properties and materials and their properties.

Foundation Stage
We teach science in reception as an integral part of the topic work covered during the year. As the reception class is part of the Early Years Foundation Stage of the National Curriculum, we relate the scientific aspects of the children's work to the EYFS objectives which underpin the curriculum planning for children aged three to five. Science makes a significant contribution to the objectives in the EYFS of developing a child's knowledge of the world.

At this phase children are:

- Developing the crucial knowledge, skills and understanding that help them make sense of the world.
- Involved in activities based on first-hand experiences that encourage exploration, observation, problem solving, prediction, critical thinking and decision-making and discussion.
- Experiencing a wide range of activities, indoors and outdoors, including adult focused, child-initiated and independent play.
- Stimulated, interested and curious.
- Observed by adults and learning is recorded in a variety of ways.

Key Stage 1 and 2

At this phase children are:

- Learning through a science process knowledge and skill-based approach.
- Undertaking practical enquiries.
- Working collaboratively and independently.
- Developing high quality, purposeful talk for science.
- Recording findings in a variety of stimulating and purposeful ways.
- Building upon prior science learning, both skill and knowledge based.
- Beginning to think about the positive and negative effects of scientific and technological developments on the environment and in other contexts.
- Evaluating their own science learning.
- Using technology to support and extend their learning in science.
- Making links across subjects.
- Experiencing a variety of teaching styles and strategies that promote positive science learning.

- Learning that science promotes the concept of positive citizenship.
- Learning through science, to raise social and moral questions, to understand differences between people and to have respect for others.

The contribution of science to teaching in other curriculum areas:

English
Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. The children develop oral skills in science lessons through discussions and through recounting their observations. They develop their writing skills through writing reports and projects and by recording information. Where appropriate to a topic, pupils have rich reading resources built into the science curriculum, using carefully selected high-quality texts which form part of our whole school reading spine.

Mathematics
Science contributes to the teaching of mathematics in several ways. The children use weights and measures and learn to use and apply number. Through working on investigations, they learn to estimate and predict. They develop the skills of accurate observation and recording of events. They use numbers in many of their answers and conclusions.

Computing
Children use computing skills in science lessons where appropriate. They use it to support their work in science by learning how to find, select, and analyse information on the internet. Children use computing skills to observe, record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

Extra- curricular Science opportunities
There are many opportunities for children to extend and develop their science learning through various clubs throughout the year. These have included STEM (Science, technology, engineering and Maths), gardening club and eco club.

Personal, social and health education (PSHE) and citizenship
Science makes a significant contribution to the teaching of personal, social and health education. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. For example, children study the way people recycle material and how environments are changed for better or worse. Secondly, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions. Science promotes the concept of positive citizenship.

Spiritual, moral, social and cultural development
We are constantly looking for ways to promote and embed our virtues in all our teaching and learning. Science teaching offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the nature of our world. Science raises many social and moral questions. Through the teaching of science, children can discuss, for example, the effects of smoking and the moral questions involved in this issue. They have the chance to reflect on the way people care for the planet and how science can contribute to the way we manage the earth's resources. Science teaches children about the reasons why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people and for the planet we live in.

Teaching science to children with special educational or additional needs:
St Francis Xavier's is a Catholic school, and we aim to ensure that every child is offered the opportunity to achieve their full God-given potential. We believe that all pupils are entitled to a broad and balanced curriculum for an education that enables them to make progress so that they can achieve their best and

become confident individuals who thrive. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels.

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, and the scaffolding of tasks – so that we can take action to enable the child to learn more effectively. This ensures that our teaching is matched to the child's needs and enables all to succeed.

We use an Individual Learning Plan (ILP) for children with special educational needs. A child's ILP may include, as appropriate, specific targets relating to science.

We enable pupils to have access to the full range of activities involved in learning science. Where children are to participate in activities outside the classroom, for example, a trip to a science museum, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

Assessment and recording

We assess children's work in science by making informal judgments through observation against lesson objectives. At the end of a unit of work, the teacher uses a science quiz, based on the Knowledge Organiser (located in the children's books), to make a summary judgement about the knowledge of each pupil in relation to the expectations and National Curriculum objectives stated in the medium-term planning. Children's progress in each class is also monitored by the subject leader by completing learning walks, lesson observations, teacher discussions, pupil voice and book scrutiny. Children are judged by the criteria, 'Knowing more, remembering more and being able to do more.' Teachers plan using adaptive teaching to ensure progression, identifying next steps in their learning.
Formative assessment enables teachers at the end of units of work to make a judgement against age related expectations (ARE) – above ARE, at ARE or below ARE – this judgement is recorded on Arbor termly.

Resources

Science resources are kept centrally for ease of access by teachers of both key-stages. Regular audits of resources are carried out to establish current stock and identify specific needs to ensure curriculum delivery. Requests for resources are made via the Science Coordinator.

Monitoring and review

It is the responsibility of the science subject leader to monitor the standards of children's work and the quality of teaching in science through the monitoring of planning, book trawls, lesson observations and learning walks. This enables the co-ordinator to ensure that children are achieving their full potential at each key stage and that attainment is as expected. The science subject leader is also responsible for supporting colleagues in the teaching of science, for being informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school.

Impact:
Our science curriculum facilitates sequential learning and long-term progression of knowledge and skills. Teaching and learning methods provide regular opportunities to recap acquired knowledge through high quality questioning, primary task design to promote recall, the use of ROCKS cards for each topic, discussion, modelling and explaining to aid retrieval and higher-level thinking. This will enable all children to alter their long-term memory and know more, remember more and be able to do more as scientists.

Health and safety
It is the responsibility of the class teachers to ensure consideration of health and safety procedures when involved in science activities. If they are unclear about specific materials or processes, they should refer to CLEAPPS booklet or website and the SFX school science Risk Assessment.

Signed: Mrs S Cockroft Date: 19.1.26 Chair of Standards and Curriculum Committee

Signed: Mrs E Christopherson Date: 19.1.26 Headteacher

Signed: Mrs R Penny Date: 19.1.26 Science Lead

Mrs Rebecca Penny
Science Subject Leader December 2025