Together with Jesus, we grow in love

Holy Family Catholic Primary School

Science Policy

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Intent

At Holy Family Catholic Primary School, we teach science that stimulates our children's curiosity and to have a deeper understanding of how science will affect their future on a personal, national and global level. Science is an ongoing process as our ideas about the world around us are constantly developed and revised and this is reflected in how our children are taught to explore, investigate and develop their own explanations.

Our Children, Staff and Parents developed these main principles for our learners:

- Are enthused by practical engaging learning.
- Are a scientist by working scientifically.
- Use and understand scientific vocabulary.
- Ask questions and show resilience in learning.
- Apply skills taught in other subjects effectively.

Implementation

We teach the National Curriculum Science and Early Years Foundation Stage Understanding the World objectives through topic based learning so that children have the opportunity to learn the knowledge and skills they need and become secure. We teach the knowledge of science through and alongside working scientifically to ensure that children have a deep understanding of what they know and the impact this will have. Children are taught to use a systematic way to plan, record and review for comparative and fair test from the Early Years through to Year six. Children investigate over time, seek patterns, research, and classify objects and present their learning through reports, performances, discussions, posters, Art and writing.

Through science children have access to learning outside of the classroom during lessons, themed weeks or days, visits to local museums, exhibitions and animal enclosures as well as having many more experiences brought into the classroom. We celebrate the diverse home backgrounds of the children, recognising the wealth and variety of experiences that our learners bring with them to school and believe that every child should be given the opportunity of an engaging creative curriculum to embed the knowledge and skills they are learning.

Impact

- Children enjoy learning and are excited and inspired to learn new things. Knowledge is retained in children's long-term memories.
- Children demonstrate appreciation and wonder of the world they live. They show understanding of how science ideas are constantly being revised and how they can have an impact on this.
- Children are confident using and applying high-level scientific vocabulary.
- Children are independent learners, they show resilience and have excellent attitudes to learning.
- Children can confidently recall key knowledge from current and previous areas of learning.
- Children can work collaboratively and share knowledge with peers.

Teaching and learning styles

We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's knowledge, skills, and understanding, as well as a sense of enjoyment in science. Sometimes we do this through whole-class and small group teaching, while at other times we engage the children in an enquiry-based research activity. 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. Children use ICT in science lessons where it enhances their learning. They take part in role-play and discussions and they present reports to the rest of the class. They engage in a variety of problem- solving activities. Wherever possible, we involve the pupils in practical activities as these increase enthusiasm and motivation and provide first hand experience.

Practical activities provide the children with a range of contexts allowing safe exploration of the world. Knowledge and skills can be developed in small steps through practical work. Sequencing of written work becomes easier after practical experiences.

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:

- setting common tasks which are open-ended and can have a variety of responses;
- setting tasks of increasing difficulty (we do not expect all children to complete all tasks);
- grouping children by ability in the room and setting different tasks for each ability group;
- providing resources of different complexity, matched to the ability of the child;
- where possible, using classroom assistants to support the work of individual children or groups of children.
- Mixed ability groups in which pupils plan and work together but record their work separately.

Science curriculum planning

The curriculum plan for the school is very carefully devised to allow children to learn knowledge and skills and apply them as often as possible in real situations. It is regularly evaluated by teachers and support staff as well as the senior management team.

National Curriculum topics and content for science are mapped out across the school to ensure coverage and progression. Skills are built upon and new knowledge is embedded. Some topics may be adapted to the local circumstances of the school and we will make use of the local environment and available natural resources where possible. The teacher and science co-ordinator will arrange this where needed.

The class teacher is responsible for planning for each lesson. These plans list the specific learning objectives of each lesson. These are often part of a weekly plan.

Where possible we have planned the topics in science so that they build upon prior learning. We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit and we also build in progression of skills and knowledge so that the children are increasingly challenged as they move up through the school.

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. Some of the texts that the children study in Literacy may be of a scientific nature. The children develop oral skills in science lessons through discussions and through recounting their observations of scientific experiments. They develop their writing skills through by recording information. Every science lesson also begins with a collaborative and interactive vocabulary based starter.

Mathematics

Science contributes to the teaching of mathematics in a number of 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. They also produce diagrams, charts and graphs using the data from real investigations.

Information and communication technology (ICT)

Children use ICT 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 ICT (computer, camera, IPAD's) to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

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

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. We give them 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.

Teaching science to children with SEND

We teach science to all children, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education for all children. We provide learning opportunities that are matched to the needs of children with Special Educational Needs. Our work in science takes into account the targets set in the children's Pupil Profile plans.

Assessment and recording

We assess children's work in science by making informal judgements as we observe them during lessons. On completion of a piece of work, the teacher marks the work and comments as necessary, using the schools marking policy. Children will self-assess using the Balance Wheel.

Data for children will be collected at the end of each topic and put into our assessment system 'Balance'. The science leader then analyses it and works with the class teachers to plan additional support for those who require it.

We report progress in science to parents during parents evenings and end of year reports.

Resources

Resources for science are primarily kept together and are located on the middle floor on and next to the balcony. IPAD's and computers are timetabled to classes and can be used for children's individual research. Staff need to inform the co-ordinator of any requirements for new apparatus, any broken apparatus and of any other issues regarding resources.

Remote Learning

During school closures and other situations when students require home learning science learning will follow the school curriculum plan but will be adapted to be suitable to access via Microsoft Teams. A paper pack including any other necessary resources will be available to collect from school when needed. Resources may be adapted for things available in most homes. Expectations, examples and misconceptions will be addressed through daily meetings. Feedback and assessment will be done as children submit work online or at the school, with the teacher providing verbal or written feedback through Microsoft Teams.

Health and Safety

The staff plan lessons, particularly the more practical lessons using CLEAPS advice and recommendations. Safety equipment is available and used when necessary or advised.

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. 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.

The science subject leader gives the senior management team a termly summary report in which she evaluates strengths and weaknesses in the subject and indicates areas for further improvement. The science subject leader has specially-allocated time for fulfilling the vital task of reviewing samples of children's work, looking at planning and observing lessons.

The policy for science will be reviewed each year. The policy for science will be available to view online for parents, carers, students and other visitors to the school.