SCIENCE CURRICULUM POLICY

St. Joseph's Catholic Primary School, a Voluntary Academy

"Trusting in God, Creating tomorrow, helping today."

Intent

As a Catholic Academy, religious education and faith development are at the heart of our school curriculum developing the Catholicism and spirituality of our pupils.

The curriculum is all the planned activities which we organise in order to promote learning and personal growth and development. It includes not only the formal requirements of the National Curriculum, but also the curriculum offer which we as a school provide, to develop the independence and responsibility of all of our pupils, ensuring they are well placed to become educated citizens.

We ensure that science stimulates and excites pupils' curiosity about phenomena and events in the world around them. It also satisfies this curiosity with knowledge and progression of skills. Because science links direct practical experience with ideas, it can engage learners at many levels. Scientific method is about developing and evaluating explanations through experimental evidence and modeling. This is a spur to critical and creative thought. Through science, pupils understand how major scientific ideas contribute to technological change – impacting on industry, business and medicine and improving quality of life. Pupils recognise the cultural significance of science and trace its world-wide development. They learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world.

We aim to teach our pupils how to grow into positive, responsible people, who can work scientifically and co-operate with others while developing knowledge and skills, so that they achieve their full potential.

Our curriculum is the means by which we achieve our objectives of educating children in the knowledge, skills and understanding of science and scientific concepts that they need in order to lead fulfilling lives. Our school curriculum is underpinned by our principle value of providing high quality educational experiences which are focused on continued improvement in whole school standards and the development of independent and responsible learners.

Science Curriculum Policy

The intent which we have based our curriculum is:

- Retain and develop their natural curiosity of the world around them;
- Develop positive attitudes towards science and the impact of science in the world today;
- Build on the progression of scientific knowledge and understanding relating to the programmes of study outlined in the National Curriculum;
- Develop their skills of scientific investigation including generating questions, planning fair tests, careful observation and interpreting and evaluating evidence;
- Effectively communicate scientific information through a variety of methods;
- Develop their understanding of how to work safely.
- Set high expectations for all our pupils scientific understanding;
- Meeting the needs of all our pupils from their individual starting points, building sequentially on prior learning;
- We recognise that every child has a range of different strengths, interests and learning styles;
- All children should have self-belief and experience success;

Through this we aim to:

- Promote high standards of attainment and achievement;
- Promote a positive attitude towards science learning so that our children to develop a life-long love of science learning;
- Ensure children understand the purpose of their science learning and how it can be applied in different contexts;
- Encourage children to develop a curiosity for the world around them, asking questions and seeking answers;
- Create and maintain an exciting and stimulating learning environment where all pupils are encouraged to be risk takers;
- Support children in becoming independent, reflective and analytical thinkers and learners;
- Encourage children to value and produce high quality work, taking pride in all that they do;
- Encourage and support children in taking ownership of their science learning.

Implementation

Foundation Stage

In the Foundation Stage, learning experiences are planned around Communication and Language and Understanding the World

Active Learning through play

We organise science lessons to provide a balance between the following:-.

- Child initiated Activities
- Adult Initiated Activities
- Adult Directed Activities

At St. Joseph's we recognise that young children learn best when they are active. We understand that active learning involves other people, objects, ideas and events that engage and involve children for sustained periods. Therefore, we believe that Early Years education should be as practical as possible and our EYFS setting has an ethos of learning through play.

Planning

The EYFS framework provides a long term plan to follow by ensuring that all Early Learning Goals are covered throughout the academic year.
Medium term planning is created and takes into account the individual children's learning and developmental needs. The learning opportunities provided include a range of adult focused and child initiated activities indoors. The setting also makes use of the outdoor environment whenever possible.

Substantive and Disciplinary knowledge

Substantive knowledge is built throughout each topic. It is the specific skills and explicit vocabulary that enables children to learn the content of the curriculum for example, how plants grow, the solar system or the water cycle or learning new skills such as reading a thermometer or using a microscope.

Disciplinary knowledge enables children to gradually become more expert by thinking and working like a scientist. It includes skills such as planning an investigation to test out a theory and recording results.

Key stage 1 and Key stage 2

In KS1 and KS2, children are given opportunities to engage with the topic being covered and learn knowledge and skills. They will then use these to apply their understanding in an investigation or experiment. The science topics are taken from the National Curriculum and delivered alongside other topic areas.

Methods

Science is taught in class groups. A variety of teaching methods are used but the emphasis is on practical work through which children can develop their investigative skills as well as gain knowledge. This often involves collaborative work in pairs or small groups. In order to promote pupils' ability to work scientifically, it is expected that there will be a minimum of two investigations for each topic, one which is teacher directed and one which is completely child initiated.

Cross curricular links

Wherever possible in our teaching of science, links are made with other subject areas. We also encourage and expect a high standard of literacy in the recording and presentation of science work. ICT is used frequently to enhance teaching and learning.

Inclusion

We aim to meet the needs of all our children by planning and teaching using a variety of approaches and tasks appropriate to ability levels. We provide additional support, whenever possible, to less able children and we extend more able children through differentiated questioning and more challenging tasks.

Resources

Resources are stored centrally in the cupboard in the hall. Resources are grouped on shelves according to the National Curriculum programmes of study.

Children with Special Educational Needs

The science curriculum in our school is designed to provide access and opportunity for all children who attend the school. If we think it necessary to adapt the curriculum to meet the needs of individual children, based on an accurate understanding of the strengths and gaps in learning, which may exist.

If a child has a special need, our school does all it can to meet their individual needs. We comply with the requirements set out in the SEN Code of Practice in providing for children with special needs. If a child displays signs of having special needs, his/her teacher makes an assessment of this need. In most instances the teacher is able to provide resources and educational opportunities which meet the child's needs within the normal class organisation. If a child's need is more severe, we consider the child for an Education and Health Care Plan, and we involve the appropriate external agencies when making this assessment. We provide additional resources and support for children with special needs.

Assessment and Reporting Arrangements

Ensuring that teaching is based on an accurate and precise understanding of children's prior knowledge and understanding, is integral to our teaching. At the beginning of each unit of work, teachers will assess children's prior knowledge and understanding through a pre-learning challenge and a pre-learning word power challenge. These challenges will then inform precise next steps in learning and also how children are grouped for lessons.

- Assessment at St. Joseph's ensures a balance between robust, ongoing formative assessment and a summative assessment of what pupils have learnt at a given point in time;
- Assessment is an integral part of the teaching and learning cycle;
- Assessment builds effectively on an accurate understanding of each pupil's prior learning through the use of pre-learning challenges;

- Assessment informs planning and identifies clear next steps in learning for all pupils, enabling pupils to make at least expected progress;
- Assessment carefully and accurately tracks pupil performance and informs the target setting practise;
- Assessment engages pupils in their own learning, encourages them to reflect on their learning, assessing the progress which they have made.
- Where gaps in learning are identified, these are planned for through immediate intervention, "Impact" and through precisely planned provision mapping.
- Assessment for learning is continuous throughout the teaching of science through observing, questioning and talking to children as well as marking work.
- In the summer term of each academic year the children's progress in science is reported to parents through an annual written report.

Health and Safety

We follow the health and safety advice outlined in the National Curriculum to ensure the safety of the children when carrying out activities in science lessons.

Impact

Our science curriculum has ambition for high achievement of all pupils irrespective of background and starting point.

The teaching and learning process is cyclical, therefore assessments are used to inform teaching, but also to measure progress.

Progress is measured through the use of post learning challenges at the end of each unit of learning. These strategies support an accurate assessment of pupils' knowledge and skills, enabling staff to ascertain how learning has been embedded in long term memory and also gaps in learning. However, at St. Joseph's, we continually measure the impact of our curriculum by scrutinising pupils' books, speaking to pupils about their learning and the use of internal assessments.

Roles and Responsibilities

The science coordinator has, under direction of the Headteacher, overall responsibility for the science curriculum.

Science Curriculum Policy

This includes:

- Modelling good practice;
- Taking the lead in policy development and the production of schemes of work that ensure continuity and progression throughout the school;
- Keeping informed about developments and new initiatives related to science and communicating these to staff;
- Supporting colleagues with their science planning and teaching;
- Taking responsibility for the purchase and organisation of resources for science;
- Monitoring the delivery of the science curriculum through examining teacher's planning, work scrutiny and lesson observation.
- Auditing training needs and ensuring these needs are met through external courses or training in school.

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