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Headteacher: Mrs C. Kippax

Science Policy

Date Amended: 18th May 2024

Amended by: Jayne Harrison (Subject Coordinator)

Date for review: 18th May 2026

Signed:..... Chair of Governors

Date

Mission Statement

St Oswald's is proud to be a Roman Catholic school where every person is helped to do their best to succeed in a place of love, peace and safety, following the teachings of Jesus. In our school family, we are enthusiastic learners and teachers.

'Nihil Satis Nisi Optimum - Only the best will do'

Our Aims

In our school family, we will:

- Thank God for our talents and celebrate achievements earned through working hard, aiming high and always believing in ourselves;
- Welcome visitors to our school as Jesus welcomed us into His family;
- Love, respect and accept one another as Jesus taught us to;
- Be ready to say sorry and forgive others;
- Involve all stakeholders in the future development of the school and place God at the centre of all we do;
- Show kindness and make lasting friendships & happy memories.

Vision

We believe passionately about developing children's independence, teamwork and collaboration in Science. Children work scientifically in mixed ability groups, each person has a purposeful role and work together to solve real life problems. By giving children this freedom to make mistakes and work together, they can develop key 'working scientifically skills' such as accuracy and precision. By continually questioning the experimental design, children are able to leave St Oswald's with a high level of critical and evaluative thinking which can be transferred to other areas of the curriculum.

Children are naturally curious and passionate about learning. We provide a stimulating science curriculum that nurtures this curiosity and allows pupils to ask questions and develop the skills they need to answer those questions.

Science is a key part of the teaching and is interwoven through the curriculum on a day-to-day basis. We recognise that in an increasingly scientific and technological age children need to acquire knowledge, skills and attitudes to better prepare them for modern life. I have ensured that the Science curriculum is robust and ensures full coverage of knowledge and skills for all year groups.

Science Intent Statement

Our Science curriculum aims to provide children with engaging experiences that allow them to become scientists. These experiences should build on their natural curiosity and passion about their learning and allow them the confidence to ask questions and develop their questioning and enquiry skills. We want to enhance their learning through memorable, practical hands on experiences that encourage them to question concepts whilst providing them with the relevant scientific knowledge and vocabulary to explain it confidently. The curriculum has been structured to meet the needs of every child and ensures full coverage of knowledge and skills for all year groups. There is progression of learning from EYFS to Year 6 and links are made between new learning and existing knowledge and understanding.

Aims and Objectives

Aims

Our science programme of study for KS1 and KS2 is developed using the National Curriculum, the Lancashire planning resources and the Plan Assessment Knowledge Matrices. All staff have a clear understanding of the aims of the National Curriculum for science which are:

- scientific knowledge and conceptual understanding;
- nature, process and methods of science;
- uses and implications of science today and for the future.

EYFS plan their science curriculum using the relevant strands of the Knowledge and Understanding of the World curriculum and Plan Assessment EYFS Knowledge Matrices. This curriculum lays strong foundations for these aforementioned aims.

Objectives

Science teaches an understanding of natural phenomena. It aims 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. Children learn to ask scientific questions and begin to appreciate the way science will affect their future on a personal, national, and global level.

Curriculum Organisation

We teach science across both key stages and it is taught through the relevant strands of Knowledge and Understanding of the World curriculum in EYFS.

The school's science curriculum provides a balance of scientific knowledge and conceptual understanding, working scientifically, research, outdoor learning and investigations. Each topic will include objectives from each of these strands if applicable.

The curriculum that we follow is based on the guidance given in the National Curriculum and enhanced further by referring to the documents written by Lancashire and Plan Assessment. We teach the children to know and understand how to:

- ask and answer scientific questions;
- plan and carry out scientific investigations, using equipment, including computers, correctly;
- know and understand the life processes of living things;
- know and understand the physical processes of materials, electricity, light, sound and natural forces;
- know about the nature of the solar system, including the earth;

- evaluate evidence and present their conclusions clearly and accurately.

The subject coordinator has created a whole school curriculum map for Science, which is then broken down into biannual cycles. These cycles are then broken down further into termly cycles that were rewritten in 2020 to incorporate a long-term manageable catch-up programme. These updated cycles included potential gaps within specific topics that may have been missed due to school closure and a period of home learning. This is developed from the National Curriculum programme of study and there is clear progression of skills between and within year groups. The curriculum is evaluated formally at the end of each academic year. Relevant staff will meet and discuss any problems that have arisen over the course of the year. Informal discussions with teachers who deliver this subject also take place and these will influence any earlier changes and updates that need to be made.

Contributions to teaching in other subject areas and British Values

Science contributes to the teaching of British Values as well as a number of other subjects, such as English, Mathematics, Computing, PSHE and SMSC development. They contribute in the following ways:

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 the reading week of a unit are of a scientific nature. The children develop oral skills in science lessons through discussions (for example of the environment) and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information.

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.

Computing

Children use computing 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 and on CD-ROMs. Children use computing packages to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

PSHE

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 different food groups as well as the different drugs and their effects on the body. Secondly, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions. They organise campaigns (through the school council) on matters of concern to them, such as helping the poor or homeless. Science promotes the concept of positive citizenship.

SMSC 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.

Through the teaching of science, children have the opportunity to discuss, for example, the effects of smoking and the moral questions involved in this issue. 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.

British Values

Democracy - We learn through our lessons to take into consideration the views and opinions of others. We take turns and instructions from others.

The Rule of Law - We learn and understand the importance of following safety rules when working scientifically. These lessons help children to understand the consequences of their actions, which in turn helps them to apply this understanding to their own lives.

Individual Liberty - We learn to confidently share our own opinions and ideas and respect the opinions of others. Within these lessons, pupils are encouraged to make their own choices when planning an investigation and recognise that others may have different points of view.

Mutual Respect - When learning and investigating during Science lessons, we work as a team, supporting each other and sharing ideas and opinions. We discuss our findings and respect each other's work – through this; we offer support and advice to others.

Tolerance of those of different faiths & beliefs - Through lessons and discussion, we look at scientific discoveries that have come from other cultures and how religious beliefs often compete with scientific understanding. We learn to be respectful of these beliefs and to appreciate and understand them

Science Implementation Statement

Our Science curriculum will be taught by enthusiastic teachers who are able to adapt their teaching both before and during the lesson to meet the needs of individual pupils. Teachers check on what a child already knows about a topic before asking them to suggest questions that they would like answering. Children are immersed in concepts in a variety of ways, encouraged to speak and listen about the concept and regularly revisit new learning to contribute to learning becoming 'sticky'. Children are also asked to review their learning at the end of a topic and encouraged to share their knowledge with their peers and parents. Key knowledge and skills are identified in each topic to ensure a progressive acquisition of knowledge.

Teaching and Learning Style

We base the teaching on the objective provided by the Key Learning documents produced by Lancashire and the Knowledge Matrices available from Plan Assessment. We have adapted this to the context of our school and the abilities of our children.

We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's knowledge, skills, and understanding. Sometimes we do this through whole-class 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. They 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 wide variety of problem-solving activities. Wherever possible, we involve the pupils in 'real' scientific activities, for example, researching a local environmental problem or carrying out a practical experiment and analysing the results.

Equality, Inclusion and Special Educational Needs & Disabilities (SEND)

We are committed to providing a teaching environment which ensures all children are provided with the same learning opportunities regardless of social class, gender, culture, race, special educational need or disability. Teachers use a range of strategies to ensure inclusion and also to maintain a positive ethos where children demonstrate positive attitudes towards others. We aim to meet the needs of all our children by differentiation in our teaching by providing a variety of approaches and tasks appropriate to ability levels, including small mixed ability groups and 1:1 support. This involves providing opportunities for SEND pupils to receive support to develop speech and language skills, as well as scientific skills and knowledge. This will enable children with learning and/or physical difficulties to take an active part in scientific learning and practical activities and investigations and to achieve the targets they have been set. Some children will require closer supervision and more adult support to allow them to progress whilst those who are more able will be extended through differentiated activities. These extended activities will allow those children to progress to a higher level of knowledge and understanding, appropriate to their abilities.

Assessment

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. At the end of a unit of work s/he makes a summary judgement about the work of each pupil in relation to the National Curriculum level of attainment. The school currently uses the Lancashire Skills Ladders in order to assess children's skills in 10 different areas of learning in Science, recording their level on the termly trackers and then passing this onto the Science Co-ordinator and the Head Teacher. These levels will then be inputted into Lancashire Tracker to enable the school to analyse this data. The teacher records this information using end of unit teacher assessments. This information is also used as the basis for assessing the progress of each child and we pass this information on to the next teacher at the end of the year.

Teachers assess the children's work in science at the end of Key Stage 1 and Key Stage 2. We report teacher assessment to parents which we make while observing children throughout the year.

The science subject leader keeps samples of children's work by retaining three books from each year group at the end of each academic year. These are used to demonstrate what the expected level of achievement is in science for each age group in the school.

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 this curriculum area. 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 head teacher an annual summary report in which s/he 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, carrying out pupil interviews and visiting classes to observe teaching in the subject.

The Science curriculum is evaluated formally at the end of each academic year. Relevant staff will meet and discuss any problems that have arisen over the course of the year. Informal discussions with teachers who deliver this subject also take place and these will influence any earlier changes and updates that need to be made.

Science Impact Statement

Throughout the school, the learning in science is explored in such a way that clear links are made to the 'real world'. Teachers enjoy teaching this subject and this is clear from learning walks carried out and through the discussion had with children about the topics they have covered. Our science curriculum is enhanced through various workshops, trips and resources that help children to understand that it is an important subject, which plays a key role in our lives.

Evidence of Progression

Following learning walks, monitoring of planning and books and pupil interviews it is clear that there is a progression of skills throughout the school. Children develop their scientific knowledge and conceptual understanding skills and this is evidenced in the portfolio of work that is retained at the end of each academic year.

Resources

The science curriculum is well resourced with a range of scientific equipment that enables children to carry out practical tasks. We have access to lots of outdoor space and a Forest School area within close vicinity of the school. All resources are kept in a communal science area and are stored in labelled drawers. Children can also make use of books from the school library and reading area as well as a large number of iPads to carry out any research.

Health and Safety

All practical science lessons have had risk assessments completed using the Lancashire County Council General Schools Risk Assessment and by referring to CLEAPS guidance. These are available electronically in our Shared Resources area and in hard copy in the relevant file.

Signed: J Harrison Dated: 19/5/2024