Science Policy

"Our school is a place where we all come together as one community to learn, have fun and make lasting friendships all under God's love and care"

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1. Introduction

This policy outlines the teaching, organisation and management of the Science taught and learnt at St. Lawrence Catholic Primary School. The school's policy for Science follows The National Curriculum 2014 for Science Guidelines and the Early Years Foundation Stage Framework and aims to ensure that all pupils:

- develop **scientific knowledge and conceptual understanding** through the specific disciplines of Biology, Chemistry and Physics;

- develop understanding of the **nature, processes and methods of Science** through a variety of different scientific enquiries that help them to answer questions about the world around them;

- are equipped with the scientific knowledge required to understand the uses and implications of Science, today and for the future;

- are encouraged to understand how Science can be used to explain what is occurring, predict how things will behave, analyse causes and evaluate outcomes;

- Where suitable, adaptable, adaptations have been made to suit our school's environment and ethos.

2. Aims

A high-quality Science education provides foundations for understanding the world. Through building key knowledge and understanding of concepts, pupils should be encouraged to recognise the power of explanation and develop a sense of curiosity about natural phenomena.

- For staff to work cooperatively to deliver a broad and balanced Science education which incorporates a range of learning styles to suit individual needs.

- For children to have the right to equal opportunities in Science in our school regardless of their background, religion, race, gender, physical or intellectual ability.

- For children to become curious about the world around them and the things that they observe, experience and explore.

- For children to use their experiences to develop understanding of key scientific ideas through enquiry.

- For children to develop skills of sorting, classifying, planning, predicting, questioning and drawing conclusions from a range of activities.

- For children to acquire and refine practical skills necessary to investigate ideas and questions safely.

- For children to practise mathematical skills and enhance literacy skills (where possible) within real contexts.

- For children to develop language skills through talking about their work and presenting their findings.

- For children to use progressively technical scientific and mathematical vocabulary and draw diagrams and charts to communicate scientific ideas.

- For children to use a range of media including ICT to extract and present scientific information.

- For children to work collaboratively with others, listening to their ideas and treating these with respect.

- For children to develop an understanding of how to respect the environment and living things, including themselves and each other.

- For children to develop responsibility for their own health and safety and that of others when undertaking scientific activities.

3. Teaching and Learning

To provide adequate time for developing scientific knowledge, skills and understanding, each teacher will provide regular Science lessons. These may vary in length based on the objectives being explored. Teachers will base their planning on the programmes of study for their relevant year groups and will identify the most appropriate teaching strategy to suit the purpose of each particular learning situation.

Some teachers have decided to ‘block’ units of learning whilst others are teaching them as an integrated part of the topic for the term.

There are a variety of ways in which the teaching and learning may be effective. Our school aims to encourage learning through investigation, with an emphasis on first-hand experience. Science lessons have no imposed formal structure but should typically contain some of the following elements: discussion; whole class, group or individual learning; practical, investigative tasks; recording; communicating.

Foundation Stage: Science is an integral part of topic learning and should be embedded throughout activities. At this stage, the ‘understanding the world’ area of learning commands at least one hour of structured time per week and is evident throughout other learning tasks.

Cross-curricular links will also be made to other subjects so that pupils can develop and apply their scientific skills.

Key Stage 1: The main 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. Pupils should read and spell scientific vocabulary at a stage consistent with their current reading and spelling knowledge.

Lower Key Stage 2 – Years 3 and 4: The main 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 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’ must **always** be taught through and clearly related to substantive Science content in the programme of study. Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing reading and spelling knowledge.

Upper Key Stage 2 – Years 5-6: The main 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 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. Pupils should read, spell and pronounce scientific vocabulary correctly.

'Working and thinking scientifically' must **always** be taught through and clearly related to substantive Science content in the programme of study.

4. School Overview of Science

The programmes of study for Science are set out year-by-year for key stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. 'Working scientifically' specifies the understanding of the nature, processes and methods of Science for each year group and should not be taught as a separate strand. This element will be embedded throughout the delivery of the Science curriculum at St. Lawrence Catholic School. Cross-curricular links are also made where possible to enhance the learning of Science.

5. Planning

It is the responsibility of the class teacher/ year group teachers to undertake the Science planning for their class, or oversee it where a student may be taking the class.

Long term plans:

Long term plans (or yearly plans) are shown on the curriculum overview for each year group.

Medium term plans:

Medium term (or Schematic breakdown) planning should show an overview of what will be covered week by week. An objective or title for each week will suffice. Opportunities for 'Scientific Enquiry' should be included wherever possible.

Short term plans:

Short term plans (or weekly plans) should contain more detailed information about

what will happen in the lesson. Teachers may also wish to include relevant vocabulary, questions they wish to ask and a resource list. Opportunities for cross-curricular links may also be identified. Where there are health and safety issues, these should be clearly shown on the planning and acted upon accordingly.

6. Assessment

Throughout the school teachers will assess whether children are working at/above or below the expected level for their age based on their understanding and application of the content of the National Curriculum 2014. Progress and attainment is reported to parents through parents' evenings and end of year reports.

7. Marking

Refer to the Whole School Marking Policy.

8. Resources

The school holds a central bank (Science cupboard) of teachers' resource books and frequently used resources including hand lenses, magnets, thermometers, measuring equipment and human body. Children are encouraged to choose from a range of equipment and are trained in the safe and considerate use of animals, plants and consumable materials. Objects which are specific to a single year group may be kept within those class rooms. The Science coordinator is responsible for maintaining this area and ordering any necessary items that have been identified as a need. All staff members have a shared responsibility for collecting and returning necessary items to the correct place to ensure that resources are easy for all staff to access.

9. Equality of Opportunity

All children have equal access to the science curriculum and its associated practical activities. The SLT, Class Teachers and LSAs at St. Lawrence Catholic School are responsible for ensuring that all children, irrespective of gender, learning ability, physical disability, ethnicity and social circumstances, have access to the whole curriculum and make the greatest possible progress. Where appropriate, work will be adapted to meet pupils' needs and, if appropriate, extra support given. More able pupils will be given suitably challenging activities. Gender and cultural differences will be reflected positively in the teaching materials used.

All children have equal access to the Science Curriculum, its teaching and learning, throughout any one year. This is being monitored by analysing pupil performance throughout the school to ensure that there is no disparity between groups.

10. Health and safety

It is important that children are taught the rules of safety when undertaking experiments and investigations. Materials and equipment need to be handled

sensibly and we try to ensure that children do this. It is the teacher's responsibility to make sure that all helpers (TAs, parents etc.) are aware of safety implications connected with any Science activity they are undertaking.

11. Monitoring and Evaluation

Role of Science coordinator:

- To be enthusiastic about Science and demonstrate good practises.
- To work alongside colleagues in planning where needed (progress and activities).
- To work alongside teachers in the classroom (this will depend on release time and other available help), monitoring the planning and delivery of lessons.
- To coordinate and arrange staff in-service training as required.
- To audit resources, identify needs and order equipment in school after consultation with colleagues.
- To manage the Science budget.
- To "sample" the work of children across the age range (curriculum monitoring).
- To review and evaluate the effectiveness of teaching and learning of Science, including opportunities for children to develop their spiritual, moral, social and cultural well-being.
- To provide guidance on the implementation of the Science policy.
- To suggest appropriate assessment activities where needed.
- To provide support to those colleagues who request/require it, including help with planning and organisation

Role of the Head Teacher:

- To lead, manage and monitor the implementation of the scheme of learning to ensure that Science remains a high profile subject in the school's development aims.
- With the Science coordinator, keep the governing body informed about the progress of the subject and the scheme of work.