St George's Catholic Primary School

ST GEORGE'S CATHOLIC PRIMARY SCHOOL SCIENCE POLICY

Date of policy	**October 2022**
Date of last review	**September 2023**
Reviewed by	**Subject Leader**
Date of next review	**September 2025**

R.McMahon 2023

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Rationale

At St. George's we believe that science stimulates and excites children's curiosity about phenomena and events in the world around them. It also satisfies their curiosity with knowledge. Because science links direct practical experience with ideas, it can engage learners at many levels.

At St. George's we believe that science will lead to a better understanding of ourselves and the world. It provides opportunities to appreciate scientific facts and concepts and to experience scientific discovery.

Science at St. George's is about developing children's ideas and ways of working that enable us to make sense in the world in which they live through investigation, as well as using and applying process skills.

Aims of our Science Curriculum

- Engage children as learners at many levels through linking ideas with practical experience;
- Help children to learn to question and discuss scientific issues that may affect their own lives;
- Help children develop, model and evaluate explanations through scientific methods of collecting evidence using critical and creative thought;
- Show children how major scientific ideas contribute to technological change and how these impact on improving the quality of our everyday lives;
- Help children recognise the cultural significance of science and trace its development
- To increase the child's knowledge and understanding of the world.
- To develop attitudes of curiosity, originality, co-operation, perseverance, open mindedness, self-criticism, responsibility and independence in thinking.
- To enable children to effectively and confidently communicate their scientific predictions and discoveries as they are given the opportunity to observe, describe, illustrate, hypothesise, evaluate and interpret, using appropriate scientific vocabulary.
- To develop children' understanding of the effects of their actions on the environment.

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Implementation of Policy

We have used teacher's knowledge of the curriculum to create a well sequenced and progressive curriculum map containing the key concepts children need to be procedurally fluent in to work and think like professional scientists.

Science pedagogy is based on the development of these key scientific concepts:

- **Conceptual understanding**
- **Processes**
- **Skills of enquiry**
- **Scientific attitudes**

At St. George's, scientific method is about developing and evaluating explanations through experimental evidence and modelling. This is an ignition to critical and creative thought. Through science, children understand how major scientific ideas contribute to technological change – impacting on industry, business and medicine and improving the quality of life. Children 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.

At St.George's, good science lessons should:

- ✓ Give a learning objective at the start which is referred to throughout the lesson and is evaluated at the end.
- ✓ Give opportunities for speaking and listening.
- ✓ Have questions of different levels and styles with opportunities for children to confer and discuss their ideas.
- ✓ Have interesting and varied activities.
- ✓ Have opportunities for assessment for learning such as self marking to evaluate own understanding.
- ✓ Allow for discussion of misconceptions.

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Science is not just a question of knowing facts and understanding concepts. It is also about encouraging children to behave scientifically (posing questions to be investigated, hypothesising, recording and analysing).

At St. George's teachers aim to present science in practical contexts which are relevant to the children's experiences. This will involve learning in class, group and individual situations. Some content is taught directly but enlivened through practical demonstrations. Small group activities follow on from class discussion and encourage collaboration. Where possible, children are encouraged to investigate their own questions, making decisions for themselves and maintaining a high level of motivation. Children communicate their findings in a variety of ways such as drama, written reports, short talks and demonstrations.

At St. George's, science is celebrated around the school through displays of work, materials and objects. We use cross-curricula links to science with, for example, design and technology and maths. We develop science informally through school visits and other out-of school activities. We have previously incorporated outdoor learning using Forrest school, however, due to vandalism and current extensive building work, this is currently on hold.

At St. George's we deliver the national curriculum, staff aims to promote a broad and balanced science education which enables progression and continuity between classes. We aim to teach science in ways that are imaginative, purposeful, well managed and enjoyable. Teachers will give clear and accurate explanations and offer skilful questioning, whilst making links between science and other subjects.

At St. George's, additionally, the practical nature of science is recognised and opportunities for learning through play and firsthand experience should be provided, especially in the early years. Science plays an important role in the development of investigative skills and draws upon strong mathematical links, for example measurement, pattern recognition, graphical skills and data handling. Curricula links to other areas, for example, history, are recognised and developed.

Early Years Foundation Stage

At St. George's children in EYFS will be introduced to science through the Early Years Foundation Stage (EYFS) Curriculum Guidance. The Early Learning

Goals (ELGs) for 'Understanding of the World' forms the foundation for later work in science, design and technology, history, geography and ICT.

Wherever possible the children are provided with activities based on firsthand experience that encourage exploration, observation, problem solving, prediction, critical thinking, decision making and discussion. We provide an environment with a wide range of indoor and outdoor experiences that stimulate their interest and curiosity.

At St. George's, children are provided with a broad range of opportunities and experiences in science, enabling them to work towards their Early Learning Goals.

At St. George's children develop their understanding of the world around them on a daily basis, using their senses to explore and learn about objects and materials. Children are given holistic learning experiences, incorporating elements of science in their everyday activities.

KS1

At St. George's children observe, explore and ask questions about living things, materials and physical phenomena. They begin to work together to collect evidence to help them answer questions and to link this to simple scientific ideas. They begin to evaluate evidence and consider whether tests or comparisons are preparing for the future in a caring environment.

At St. George's they use reference materials including ICT to find out more about scientific ideas. They share ideas and communicate them using scientific language, drawings, charts and tables with the help of ICT where appropriate.

The KS1 curriculum follows the National Curriculum, ensuring all areas of the Programme of Study are covered across both Years 1 and 2. Children further develop their understanding of the world around them which they have gained in the Foundation Stage. Children are able to observe, explore and ask questions about living things, materials and physical phenomena.

Children begin to work collaboratively with others, enabling them to develop their scientific knowledge and understanding and to link scientific concepts. Children communicate ideas

orally using taught scientific language and begin to develop written methods for communicating their ideas (to include drawings, diagrams, use of ICT, tables and charts).

KS2

At St. George's children learn about a wider range of living things, materials and physical phenomena. They make links between ideas and explain things using simple models and theories. They apply their knowledge and understanding of scientific ideas to familiar phenomena, everyday things and their personal health. They think about the effects of scientific and technological developments on the environment and in other contexts. They carry out more systematic investigations, working on their own and with others. They use a range of reference sources including ICT in their work. They talk about their work and its significances, using a wide range of scientific language, conventional diagrams, charts, graphs and ICT to communicate their ideas.

At St. George's the KS2 curriculum follows the National Curriculum, ensuring all areas of the Programme of Study are covered across Years 3, 4, 5 and 6. Children learn, explore and ask questions about a wider range of living things, materials and physical phenomena. Children think about the impact of scientific developments and technologies on themselves and the world around them.

At St. George's children are encouraged to develop an independent approach to their science learning, through asking questions, suggesting improvements to their work and supporting each other towards achieving a heightened understanding of scientific concepts. 'Working scientifically' is promoted across KS2 with children being given the opportunity to plan, carry out and evaluate experiments. Children are encouraged to develop their own methods for presenting their ideas (to include drawings, diagrams, use of ICT, tables and charts.)

Progression

At St. George's, as children move from Early Years to KS1 and up to KS2, science teaching and effective assessment should allow opportunities for them to progress in a range of ways.

- *We have used teachers' knowledge of the whole curriculum to create a well sequenced and progressive curriculum map containing the key concepts children need to be procedurally fluent in to work and think like professional scientists.*

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We ensure progression in the following key concepts:

- Conceptual understanding
- Processes
- Skills of enquiry
- Scientific attitudes

- From *using everyday language to increasingly precise use of technical, scientific vocabulary;*
- *From personal scientific knowledge in a few areas to understanding in a wider range of areas and knowing how these link together;*
- *From describing events and phenomena;*
- *From explaining phenomena in terms of their own ideas, to explaining phenomena in terms of scientifically accepted ideas or models;*
- *From participating in adult lead practical, scientific investigations to developing and undertaking their own scientific investigations, independently;*
- *From unstructured exploration to more systematic investigation of a question or questions developed independently;*
- *From using simple drawings, diagrams and charts to represent and communicate scientific information, to using more conventional diagrams and graphs.*

Health and Safety

At St. George's all children will be made explicitly aware of the relevance of health and safety issues when undertaking scientific work. This will be specifically highlighted when they are asked to undertake scientific investigations.

Resources

At St. George's each topic covered within the school science curriculum has its own resource box in the science stock cupboard. There is also generic science equipment within this storage area. Equipment will be updated as required, within the allocated science budget.

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ICT

At St. George's, cchildren will be given opportunities to apply and develop their ICT capability throughout their science lessons, through the use of science/ICT software, allowing them to utilise equipment such as Data Loggers, as well as Graph and Chart software, and the Internet.

Monitoring

At St. George's, monitoring of the standards of children's' work and of the quality of teaching in science is the responsibility of the science coordinator to ensure continuity and progression throughout the school. The role of science coordinator also involves being informed about current developments in the subject, and providing a strategic lead and direction for the subject in school. An annual summary of science is made in which strengths and weaknesses in the subject are evaluated, and an action plan to address any issues arising is formulated for the forthcoming year.

Equal Opportunities

At St. George's we believe that every individual within the school has the opportunity to achieve their full potential has the same chance and equal access to all areas of the curriculum.

In science this means that all children will have the opportunity;

- To develop the process of systematic enquiry
- To relate their understanding of science to everyday life and in environmental contexts
- To communicate using appropriate vocabulary and present scientific information in a number of ways
- To explore aspects of health and safety when working with living things and materials
- To carry out experimental and investigate science

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At St. George's, we aim to create a rich scientific enquiring environment

Assessment

At St. George's a range of assessment techniques will be used depending on the nature of the lesson, knowledge acquired, or the process skills used. They may be assessed through close teacher observation or discussion and sometimes small tests or problem-solving tasks may be set.

Science will be assessed in line with St. George's assessment policy

The Role of the Science Subject Leader

At St. George's the Science subject leader will:

- Ensure the development of a progressive curriculum map, monitor its implementation and impact.
- Promote the integration of science within appropriate teaching and learning activities;
- Manage the provision and deployment of resources and give guidance on classroom organisation support;
- Inspire colleagues to deliver high quality teaching and learning opportunities;
- Lead INSET within the school, and investigate suitable courses elsewhere;
- Act as a contact point between the school and support agencies, including the LA;
- Analyse data to identify strengths and weaknesses in outcomes; planning for improvement accordingly.
- Write, monitor and evaluate an action plan for Science for the School Improvement Plan
- Lead the evaluation and review of the school's Science policy.
- Bid for and manage the budget for this curriculum area;
- Monitor and review the science provision within the school

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Disability Equality Impact Assessment

This policy has been written with reference to and in consideration of the school's Disability Equality Scheme and the school's EAL policy. Assessment will include consideration of issues identified by the involvement of disabled children, EAL children, staff and parents and any information the school holds on disabled children, staff and parents.

Any questions or concerns regarding this policy should be made to the headteacher of St. George's Catholic Primary School