



## Kirk Langley Church of England Primary School

# Science Policy

Kirk Langley is a Church of England Primary School and our family believe that 'Every Child Can Shine.' Our visions and values, built on the living Gospel of Christ within daily life, are at the core of everything we do. They underpin our teaching and learning and provide an environment which prepares our pupils in being respectful, confident, thriving citizens.

*Daniel 12:3*

*'Those who have insight will shine brightly like the brightness of the expanse of heaven, and those who lead the many to righteousness, like the stars forever and ever.'*

We aim to provide a thriving, inspiring and stimulating learning environment where children achieve the very best they are capable of because all the staff value their different learning styles. Kirk Langley Church of England Primary School is committed to Christian values where children, parents/carers and our community know us by our actions.

### **Within a Christian ethos we aim to:**

- Promote a positive attitude to life-long learning, nurturing the development of self-esteem; leading to aspirational, independent learners that are prepared to be challenged and take risks in a diverse and ever changing world.
- Provide the children with valuable experiences and opportunities, through a broad, balanced and exciting curriculum, where learning is purposeful and engaging.
- Use a variety of teaching strategies and resources effectively and creatively; encouraging each child to progress and attain to the highest possible standards, in relation to their age and ability.
- Strongly believe in the partnership of parental involvement in the education of our pupils.

- Demonstrate and foster respect for ourselves and others within the school, local community and the global community.
- Respect the belief of others and celebrate cultural diversity.
- Encourage spiritual and moral values.
- Explicitly promote the fundamental British values of democracy, the rule of law, individual liberty and mutual respect and tolerance of those with different faiths and beliefs through a 'living' curriculum.
- Value each child as an individual within the school and respect personal beliefs.

## **Rationale**

At Kirk Langley Church of England Primary School, 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 Kirk Langley Church of England Primary School, 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 Kirk Langley Church of England Primary School, 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 impacts 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's understanding of the effects of their actions on the environment.

## **Implementation of Policy**

We have used the best research 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 Kirk Langley Church of England Primary School, 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 Kirk Langley Church of England Primary School, 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.

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 Kirk Langley Church of England Primary School, 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 poetry, drama, written reports, short talks and demonstrations.

At Kirk Langley Church of England Primary School, 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. We develop science informally through nature club, school visits and other out-of school activities.

At Kirk Langley Church of England Primary School, to 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 Kirk Langley Church of England Primary School, additionally, the practical nature of science is recognised and opportunities for learning through play and first-hand 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, language, are recognised and developed.

### **Early Years Foundation Stage**

At Kirk Langley Church of England Primary School, 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 first-hand 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 Kirk Langley Church of England Primary School, children are provided with a broad range of opportunities and experiences in science, enabling them to work towards their Early Learning Goals.

At Kirk Langley Church of England Primary School, 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 Kirk Langley Church of England Primary School, 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 Kirk Langley Church of England Primary School, 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 Kirk Langley Church of England Primary School, 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.

At Kirk Langley Church of England Primary School, 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 Kirk Langley Church of England Primary School, 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.

Sc1 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 Kirk Langley Church of England Primary School, 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 the best research 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.

We ensure progression in the following key concepts:

- Conceptual understanding
  - Processes
  - Skills of enquiry
  - Scientific attitudes
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- From using everyday language to increasingly precise use of technical, scientific vocabulary, notation and symbols;
  - From personal scientific knowledge in a few areas to understanding in a wider range of areas and knowing how these links together;
  - From describing events and phenomena to explaining 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 Kirk Langley Church of England Primary School, 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, with additional adults being used effectively to assist with the safe running of all science lessons.

## **Resources**

At Kirk Langley Church of England Primary School, each class ensures the equipment is matched to the units of work.

## **ICT**

At Kirk Langley Church of England Primary School, children will be given opportunities to apply and develop their ICT capability throughout their science lessons, through the use of science/ICT software.

## **Monitoring**

At Kirk Langley Church of England Primary School, monitoring of the standards of childrens' work and of the quality of teaching in science is the responsibility of the science lead to ensure continuity and progression throughout the school. The role of science lead 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 Kirk Langley Church of England Primary School, 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
- To develop and apply their ICT capability in their study of science Staff members make every effort to use stimuli that reflect the cultural diversity of our school and to draw on children own experiences.

At Kirk Langley Church of England Primary School, we aim to create a “rich scientific enquiring environment.’

## **Assessment**

At Kirk Langley Church of England Primary School, 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 Classroom Monitor objective poutcomes.

## **The Role of the Science Subject Leader**

At Kirk Langley Church of England Primary School, 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

## **Disability Equality Impact Assessment**

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