St. Wilfrid's Church of England Primary Academy

Science Policy

June 2017

Our Christian Values

As a Voluntary Aided Church of England Primary Academy, we have eight Christian Values, underpinned by love at the heart of everything we do.

Our Christian Values are:

Fair, Kind, Joy, Courage, Forgive, Hope, Peace and Trust
Love

1 Aims and objectives

1.1 Science makes an increasing contribution to all aspects of life. Children are naturally fascinated by everything in the world around them and Science makes a valuable contribution to their understanding. Children learn by investigating and exploring the world around them. They pick up clues about what they see, touch, smell, taste and hear in order to makes sense of it all. Eventually they come to conclusions which they match up with all the experiences they have had.

At St Wilfrid's we base our teaching on the 2014 National Curriculum Programmes of Study and this is particularly helpful with ensuring that there is continuity and progression.
The National Curriculum document for Science sets out a clear, full and statutory requirement for all children. It determines the content of what will be taught, and sets attainment targets for learning. The programmes of study set out what should be taught at Key Stage 1 and 2 and The Foundation Stage programmes of study for Understanding of the World are set out in the EYFS. An overview of the topics taught is set out at appendix 1.

We believe that science for children is an introduction to the exploration of phenomena in order to gain knowledge, skills and understanding about the world around in which they live. Children will be taught how to learn from science in a logical and creative manner using investigative skills as opposed to merely learning a collection of scientific facts.

1.2 The aims of science within the National Curriculum are to enable children to:

- develop skills of prediction, asking questions, making inferences, drawing conclusions and giving evaluations based on evidence and their scientific understanding;
- practice mathematical skills e.g. counting, ordering numbers, measuring to an appropriate number of decimal place, drawing and interpreting graphs and bar charts in real contexts;
- learn why numerical and mathematical skills are useful in science;
- work with others, communicating their own ideas listening to those of others and treating each person with respect;
- understand the importance of science in everyday life, including their own personal health and safety as well as respect for the environment and all living things.

2 Teaching and learning style

2.1 We use a variety of teaching and learning styles in science lessons. Our main aim is to develop children's scientific knowledge and understanding through the use of problem solving, observations, and practical based activities. Thinking skills play an important part in these processes. We do this through whole-class teaching, individual research and group work. We encourage the children to use appropriate scientific vocabulary and language and ask, as well as answer, scientific questions. The children have the opportunity to use a variety of data, such as statistics, graphs, pictures, and photographs. ICT is used in science lessons to enhance learning. Children take part in discussions, research, problem solving activities and small projects. These projects range from researching a local environmental problem or carrying out a practical experiment and analysing the results.

2.2 We recognise that there are children of widely different scientific abilities in all classes and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways by:

- setting common tasks which are open-ended and can have a variety of responses;
- setting tasks of increasing difficulty (we do not expect all children to complete all tasks); and
- grouping children by ability and setting different tasks for each ability group.

Some children with specific difficulties may, on occasion, require and receive additional support or modified tasks to suit their individual needs.

3 Equal Opportunities

3.1 We teach science to all children, whatever their ability. It is important when planning work in Science that the teacher pays close attention to equal opportunity in respect of gender, race, the needs of the most able children and those children with special educational needs. In addition special arrangements may need to be made for those children with English as a second language with assistance provided by qualified staff.

3.2 Science forms part of the school curriculum policy to provide a broad and balanced education for all, children. We provide learning opportunities that are matched to the needs of children with learning difficulties. Our work in science takes into account the targets set in the children's Individual Education Plans (IEPs).

3.3 The teaching of science complies with all aspects recorded in the school's Equality Policy.

4 Science curriculum planning

4.1 We follow the programmes of study outlined in the National Curriculum 2014. The study of science is twofold; firstly the development of scientific enquiry and secondly the acquisition of knowledge and understanding.

4.2 Curriculum planning in science has three phases, long-term, medium-term and short-term. The long-term plan maps the scientific topics studied in each term during the key stage. The science subject leader ensures that all National curriculum units are covered across the school. We often combine the scientific study with work in other subject areas so that it becomes part of a creative context for learning. At other times the children study science as a discrete subject.

4.3 The class teacher is responsible for writing the short-term plans known as the learning cycle plan. This plan sets out:

- the initial 'wow' lesson to launch and engage the children's curiosity;
- the key learning objectives and questions for pupils to research;
- opportunities for exploring, observing, classifying, researching and obtaining first hand experiences of the topic being taught;
- science challenges that may involve creating, inventing or designing a product;
- a focused investigation, pattern seeking survey or product that the children design and make, applying the scientific knowledge that they have acquired.

4.4 We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each science topic by building on their prior learning. In addition we ensure that children are increasingly challenged as they move up through the school.

4.5 From time to time the teaching of science is enhanced by the use of outside specialist staff who may deliver workshops to individual classes/Year groups or through school trips.

5 Foundation Stage

5.1 We teach science in Reception and Nursery classes as an integral part of the topic work covered during the year. As the reception class is part of the Foundation Stage of the National Curriculum, we relate the scientific aspects of the children's work to the objectives set out in the Development Matters and Early Learning Goals which underpin the curriculum planning for children aged three to five. Science makes a significant contribution to the objective of developing a child's knowledge and understanding of the world, e.g. through investigating what floats and what sinks when placed in water; or how different transport move.

6 The contribution of science to teaching in other curriculum areas

6.1 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 literacy are of a scientific nature. The children develop oral skills in science lessons through discussions and through recounting their observations of scientific experiments. They develop their writing skills through writing reports, letters and projects and by recording information.

6.2 Mathematics
Science contributes to the teaching of mathematics in a number of ways. The children use weights and measures, use and apply number operations and read scales off a variety of measuring instruments. They learn to estimate and predict, when working on scientific investigations. They develop the skills of accurate observation and the recording of events in tables and charts. Numbers are used in many of their answers and conclusions. Often children collect data as part of an investigation and this is displayed in graphs, tables and charts.

6.3 Computing
Children use ICT in science lessons where appropriate. They use it to support their work by learning how to find, select, and analyse information on the internet. It is also used to record, present and interpret data particularly when they are completing a problem solving or data handling data activity.

6.4 Personal, social and health education (PSHE) and citizenship
Science makes a significant contribution to the teaching of personal, social and health education. Healthy life styles are encouraged through the study of nutrition and also through studying how to keep healthy. Children also study the way materials decay and how environments are changed for better or worse. Children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions. Science promotes the concept of positive citizenship.

6.5 Spiritual, moral, social and cultural 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.

7 Assessment and recording

7.1 Assessments are made in line with the schools assessment policy and are used to inform and develop science teaching and planning. At the start of each topic children's prior knowledge is assessed. This aids planning and teaching of the topic. In addition Ipads are used for individual research topics, as appropriate. Additionally assessment for learning techniques are used throughout lessons where children are involved in

assessing their own learning through self-assessment. From time to time children will be provided with supplementing questions, following marking for deeper learning.

7.2 We assess children's work in science using a number of relevant learning objectives appropriate to unit being taught. These levelled objectives are used by the teachers when making informal judgments during lessons through observations and when marking work completed by the child.

7.3 The teacher makes a summary judgment about the work of each pupil in relation to the National Curriculum. This is recorded in our school tracker system and provides an accurate view of children's progress against their individual targets. This enables a teacher to identify those children not making expected progress so that an intervention strategy can be put in place.

7.4 At the end of the school year each pupil's level of attainment, across the units taught, is summarized and recorded. We pass this information on to the next teacher to enable continuity and progression. In addition targets for the next school year are set using this data.

7.5 The science subject leader reviews a sample of children's science work to ensure consistency and progression throughout the school. Samples of children's work is also retained in a Portfolio and used to demonstrate what the expected level of achievement is in science for each age group in the school.

8 Resources

8.1 There is a range of resources to support the teaching of science units in the school. We keep these in a central store in each Key Stage. There is also a good supply of science topic books in the library. Computer software, to support children's learning, is available on all class computers.

9. Links with other Policies

This policy is linked to the following school policies:

- PSHE and Citizenship,
- Confidentiality,
- Equality and Community Cohesion Policy; and
- Child Protection.

These policies should be referred to for specific details about possible related issues.

10. Health and Safety

It is the duty of all staff to take reasonable care for the health and safety of themselves and others in line with the school's Health and Safety Policy. Class teachers will take responsibility to plan safe, scientific activities. Teachers will explain the reasons for safety measures and discuss any implications with the children. Children should always be encouraged to consider safety for themselves, others, the environment and the resources they use when undertaking scientific activities.

11. CPD

Teachers are expected to keep up to date with subject knowledge and use current materials that are available in school or online.

Training needs are identified as a result of whole school monitoring and evaluation, performance management and through induction programmes. These will be reflected in the School Development Plan. The Science co-ordinator will arrange for relevant advice and information, such as feedback from courses or newsletters, to be distributed. Where necessary, the Science co-ordinator will organise school based training.

10. Monitoring and review

10.1 Monitoring of the standards of children's work and of the quality of teaching in science is the responsibility of the science subject leader. The work of the science subject leader also involves supporting colleagues in the teaching of science, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The Science subject leaders evaluate the previous year's SDP and complete a new SDP each year. A member of the Governing body is appointed as the Science Curriculum Governor and regularly meets with the coordinators to monitor and report back to the Governing body on developments in science. An annual summary of science is made, in which strengths and areas for development in the subject are evaluated. This is made available to the Headteacher and Governors.

Signed:

Headteacher:

Date: