



St. Mark's, Elm Tree
Church of England Voluntary Aided
Primary School

Science Policy

The policy was reviewed: October 2016
The policy was approved:

Science Policy

Mission Statement

At St Mark's Elm Tree CE VA Primary we will:

- Welcome everyone
- Build Christian values and worship into our teaching
- Establish strong links between home, school and community
- Endeavour to reach our full potential and celebrate our achievements
- Care for, encourage and respect each other
- Support each other to stay safe, healthy and make a positive contribution to our World
- Our school is a place where every person has the right to be themselves and to belong and learn in a safe and happy environment. Everyone at our school is equal and treats each other with respect. We do not tolerate bullying at our school.

"I have no special talent. I am only passionately curious"
"The important thing is not to stop questioning. Curiosity has its own reason for existing" – Albert Einstein

1 Aims and objectives

1.1 Science teaches an understanding of natural phenomena. It aims to stimulate a child's curiosity in finding out why things happen in the way that 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 in which science will affect the future on a personal, national and global level. It uses school grounds, inside and outside, and fosters links to industry to enable and encourage our children to have high aspirations for their own future.

1.2 Our objectives in the teaching of science are for all our children to provide creative and engaging science lessons that enable children:

- to ask and answer scientific questions;
- to know about life processes including evolution;
- to know about materials, electricity, light, sound, and natural forces;
- to know about the nature of the solar system, including the earth;
- to plan and carry out scientific investigations, with the correct use of equipment based on their prior knowledge
- to know how to evaluate evidence, and to present conclusions both clearly and accurately.

2 Teaching and learning style

2.1 We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's knowledge, skills, and understanding which they can then demonstrate through application of skills. 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 and promote interdependence. They have the opportunity to use a variety of data, such as statistics, graphs, pictures and photographs. They engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in real scientific activities, e.g. investigating a local environmental problem, or carrying out a practical experiment and analysing the results.

- 2.2 We recognise that in all classes, children have a wide range of scientific abilities, 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:
- setting 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);
 - grouping children by ability (informed by regular AFL) and setting different tasks for each ability group;
 - providing resources of different complexity, matched to the ability of the child;
 - using teaching staff to support the work of individual children or groups of children.

3 Science curriculum planning

- 3.1 The school uses the national scheme of work for science as the basis of its curriculum planning.
- 3.2 The long-term curriculum maps indicate the scientific topics studied in each term during the Key Stage (Key Stage 1, Lower Key Stage 2 and Upper Key Stage 2). We combine the scientific study with work in other subject areas; occasionally, the children may study science as a discrete subject.
- 3.3 The class teacher is responsible for writing the daily lesson plans for each lesson (short-term plans). These plans indicate objectives to be covered and the expected learning outcomes of each lesson, incorporating any specific skills to be taught. The class teacher saves these plans either in the theme planning folder or the science planning folder within foundation planning on Staff Shared.
- 3.4 Curriculum planning for science runs on a two year rolling programme, therefore children will be taught some parts of the science curriculum 'out of year group' (year 5 may cover year 6 units and vice versa). However, all children will have been taught all relevant units by the end of each Key Stage phase (Key Stage 1, Lower Key Stage 2 and Upper Key Stage 2)
- 3.5 Teachers' planning builds on the prior learning and knowledge of the children. Assessment for learning opportunities are planned for and lessons are planned for using the information gathered. We ensure that there are opportunities for children of all abilities to develop their skills and knowledge.

4 Science in the EYFS Curriculum

Science is taught through an area of learning called 'The World', which is divided into 3 strands.

- People and Communities
- The World
- Technology

'The World' lends its self to children being able to investigate and explore to find out more about the world around them. Their learning develops as children take notice of everything around them including places and all the things within them, such as trees in the natural environment and roads and traffic in the built environment. Finding out about places begins initially when a child learns about their own home and the things nearby, then later as children notice things on journeys to and from home, such as the sequence of the traffic lights or names on street signs. This awareness is extended by visiting places and finding out about different elements of environments in books, on TV and through using other technology. This aspect of learning also focuses on thinking about cause and effect. It is developed through having quality interactions with adults and other children about the things they observe, this includes engaging adult led tasks, such as making rafts to help the 'Gingerbread man' cross the river. In EYFS the continuous provision provides an enabling

environment with well resources areas, so that the children can explore and investigate by using their senses and previous knowledge, independently to find out more. These areas include; sand and water, creative, investigation, messy play and a vast outside learning environment.

5 The contribution of science to teaching in other curriculum areas

5.1 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 Literacy are of a scientific nature. The children develop oral skills in science lessons through discussions (e.g. 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.

5.2 Mathematics

Science contributes to the teaching of mathematics in a number of ways. When the children use weights and measures, they are learning to use and apply number. Through working on investigations, they learn to estimate and predict. They develop accuracy in their observation and recording of events. Many of their answers and conclusions include numbers and are recorded graphically.

5.3 Personal, social and health education (PSHE) and citizenship

Science makes a significant contribution to the teaching of PSHE and citizenship. 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 way in which people recycle material and how environments are changed for better or worse. Secondly, the subject gives children numerous opportunities to debate and discuss. They can organise campaigns on matters of concern to them, such as climate change. Science thus promotes the concept of positive citizenship.

5.4 Spiritual, moral, social and cultural development

Science teaching offers children many opportunities to examine some of the fundamental questions in life, e.g. 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 in which 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.

6 Science and ICT

6.1 ICT enhances the teaching of science in our school because there are some tasks for which ICT is particularly useful. Software is used to animate and model scientific concepts, and to allow children to investigate processes which it would be impracticable to do directly in the classroom. Data loggers are used to assist in the collection of data and in producing tables and graphs. Children learn how to find, select, and analyse information on the Internet and on other media.

7 Science and inclusion

7.1 At our school, we teach science to all children, whatever their ability and individual needs. Science forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our science teaching, we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of those

pupils with special educational needs, those with disabilities, those who are identified as AG&T, and those learning English as an additional language.

- 7.2 We enable all pupils to have access to the full range of activities involved in learning science. Where children are to participate in activities outside the classroom (a trip to a science museum, for example), we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

8 Assessment for learning

- 8.1 Teachers will assess children's work in science by making informal judgements during lessons. On completion of a piece of work, the teacher assesses it against the learning objective of the lesson, and uses this assessment to plan for future learning. Written or verbal feedback is given to the child to help guide his/her progress. Older children are encouraged to make judgements about how they can improve their own work.
- 8.2 The teacher continuously records the childrens' outcomes on SIMS, providing a growing bank of evidence to inform future planning, provision and assessment (End of Year 6 ITAF judgment).

9 Resources

- 9.1 We have sufficient resources for all science teaching units in the school. We keep these in a central store, where there is a box of equipment for each unit of work. Resource audits are carried out yearly to ensure they meet the needs of the curriculum.

10 Monitoring and review

- 10.1 The coordination and planning of the science curriculum are the responsibility of the subject leader, who also:
- supports colleagues in their teaching, by keeping informed about current developments in science and providing a strategic lead and direction for this subject;
 - audits resources to ensure they meet the needs of the curriculum.
 - gives the headteacher an annual summary report in which s/he evaluates the strengths and weaknesses in science and indicates areas for further improvement;
 - uses specially allocated regular management time to review evidence of the children's work, and to observe science lessons across the school.
 - Moderates coverage and progression throughout the year.
- 10.2 This policy will be reviewed every year.

Signed:

Date: 6th October 2016

Review date: October 2017