

Barford St Peter's C of E  
(V.A.) Primary School



Science  
Policy

September 2020

## **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.

### **1.2 Our objectives in the teaching of science are to:**

- 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 different types of science enquiries that help children to answer scientific questions about the world around them;
- equip children with the scientific knowledge required to understand the uses and implications of science, today and for the future.

## **2 Teaching and learning**

2.1 We use a variety of teaching styles in science lessons. Our principal aim is to develop children's knowledge, skills, and understanding. 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. They have the opportunity to use a variety of data, such as statistics, graphs, pictures and photographs. They use computing in science lessons where it enhances their learning. They take part in role-play and discussions, and they present reports to the rest of the class. They engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in real scientific activities, such as 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);
- sometimes grouping children by ability and setting different tasks for each ability group;
- providing resources of different complexity, matched to the ability of the child;

- using teaching assistants to support the work of individual children or groups of children.

### **3 Science curriculum planning**

3.1 Science is a core subject in the 2014 National Curriculum. The school uses the national programme of study for science as the basis of its curriculum planning adapting it to the local circumstances of our school. We make use of the local environment in our fieldwork.

3.2 We carry out our curriculum planning in science in 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. In some cases, we combine the scientific study with work in other subject areas, especially at Key Stage 1; at other times, the children study science as a discrete subject.

3.3 Our medium-term plans in science, give details of each unit of work for each term. The science subject leader keeps and reviews these plans.

3.4 The class teacher is responsible for writing the daily lesson plans for each lesson (short-term plans). These plans list the specific learning objectives and expected outcomes of each lesson.

3.5 We have planned the topics in science so that they build on prior learning. We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit, and we also build progression into the science scheme of work, so that the children are increasingly challenged as they move up through the school.

### **4 The Early Years Foundation Stage**

4.1 We teach science in the Reception class as an integral part of the topic work covered during the year. The Reception class is part of the Early Years Foundation Stage. We therefore relate the scientific aspects of the children's work in the Understanding of the World area of learning to the objectives set out in the Development Matters document, working towards the Early Learning Goals (ELGs) which underpin the curriculum planning for children aged three to five. Science makes a significant contribution to developing a child's knowledge and understanding of the world, for example, through investigating what floats and what sinks when placed in water.

## **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 the literacy hour 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. They are also required to record and interpret data and draw a variety of graphs including line and bar charts.

### **5.3 Humanities**

Science contributes significantly to the teaching of humanities. For example, there are many overlaps with geographical understanding as children learn about their environment and how it has changed over time. Some people who were important to the development of science are studied in history lessons and now under the new curriculum studied within science. Teachers will take opportunities that arise in science lessons to explore issues that arise in the natural world.

### **5.4 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 helping poor or homeless people. Science thus promotes the concept of positive citizenship. It also highlights the importance of protecting species natural habitats and the harm that can be caused by urban developments.

## **5.5 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 processes that effect living things, children develop a sense of awe and wonder regarding the nature of our world. Science raises many social and moral questions. 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 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 Computing**

6.1 Computing enhances the teaching of science in our school significantly, because there are some scientific investigations where computing can be particularly useful. It also offers ways of impacting on learning which are not possible with conventional methods. Software is used to animate and model scientific concepts, and to allow children to investigate processes which it would be impractical to do directly in the classroom. Children use computing to record, present and interpret data, to review, modify and evaluate their work, and to improve its presentation. 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 with special gifts and talents, and those learning English as an additional language, and we take all reasonable steps to achieve this.

7.2 Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected outcomes. This ensures that our teaching is matched to the child's needs.

7.3 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 (e.g. a trip to a science museum), we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

## **8 Assessment**

8.1 Teachers will assess children's work in science by making informal judgements during lessons. On completion of an assessment, teachers will use this to plan for future learning. Written or verbal feedback is given to the child to help guide progress. Older children are encouraged to make judgements about how they can improve their own work.

8.2 At the end of a unit of work, the teacher makes a summary judgement about the work and progress of each pupil. We use this information as the basis for assessing the progress of each child over the academic year and we pass this information on to the next teacher at the end of the year.

## **9 Resources**

9.1. We keep resources in a central store. The library contains science topic books and the ipads, chromebooks and laptops support children's individual research.

## **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.

10.2 The quality of teaching and learning in science is monitored and evaluated by the headteacher as part of the school's agreed cycle of monitoring and evaluation.

Signed: N. Smith

Date: 21/09/2020