

## **St Edmund's RC Primary School**

### **Science Policy**

*"A learning community, celebrating Christ in all, building a kingdom of love, hope and joy."*

As a Catholic school we recognise in everyone the dignity and beauty of the person, made in the image of God. We value each individual and respect them regardless of their background and circumstances because they are our brothers and sisters in the family of God, and we are called to love and value everyone.

#### **Rationale**

Science in our school provides opportunities for children to develop their knowledge and understanding of the world in which they live both through practical experience and from other sources of information. Scientific knowledge is built up through the experimental testing of ideas and is a practical way of finding reliable answers to questions we may ask about the world around us. A good understanding of scientific knowledge and conceptual understanding helps to support pupils' work across the curriculum.

#### **Aims & Objectives**

Our Science Policy follows The National Curriculum 2014 Science Guidelines and aims to ensure that all pupils:

- develop and extend 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 them to answer scientific questions about the world around them;
- are equipped with the scientific knowledge required to understand the uses and implications of Science, today and in the future.
- foster concern about, and actively care for, our environment.
- develop an understanding of the international and collaborative nature of Science.

#### **Attitudes**

- Encourage the development of positive attitudes to Science.
- Build on our children's natural curiosity and help them to develop a scientific approach to problems.
- Encourage open-mindedness, self-assessment, perseverance and responsibility.
- Build our children's self-confidence to enable them to work independently.
- Develop our children's social skills to work collaboratively with others.
- Provide our children with an enjoyable experience of science, so that they will develop a deep and lasting interest and may be motivated to study Science further.

#### **Skills**

- Give our children an understanding of scientific processes.
- Help our children to acquire practical scientific skills.

- Develop the skills of investigation - including observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.
- Develop the use of scientific language, recording and techniques.
- Develop the use of ICT in investigating and recording.
- Enable our children to become effective communicators of scientific ideas, facts and data.
- Develop the initiative to work both independently and in co-operation with others.
- Develop the ability and understanding to use and apply Science across the curriculum and real life.

### **Purpose of Study**

Science teaching in school is about excellence and enjoyment. A high-quality Science education provides the foundations for understanding the world. Science has changed our lives and is vital to the world's future prosperity. Through building key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how key knowledge and concepts can be used to explain what is occurring, predict how things will behave, and analyse causes. This understanding should be consolidated through their appreciation of applications of Science in society and the economy.

We have established a good relationship with a local secondary school. This has enabled us to share resources and offer a wider range of scientific opportunities to the children. Teaching staff are developing links with local scientific organisations e.g. Science Oxford and Oxford Brookes University, to provide the children with more hands-on experience in Science. The school is also part of the Ogden Trust and Year 2 completes Crest Awards each year. This further demonstrates to the children the relevance of Science in the world around them.

Wherever possible, the teaching and learning of Science is enhanced by educational visits using the local area as a resource, or by inviting visitors to the school. Science week takes place during the spring term, helping to raise the profile of Science in school and allowing the children to experience a range of exciting activities and mini-projects.

### **Planning the School Curriculum**

Planning for Science is a process in which all teachers are involved to ensure that the school gives full coverage of National Curriculum Science and Science in EYFS. The programmes of study for Science are set out year-by-year for Key Stages 1 and 2. Teachers base their planning on the programmes of study for their relevant year group.

At the beginning of each new academic year, a list of scientific vocabulary, relevant for that year group, will be displayed at the front of each child's book. Also, each new area of study will have a front page which will be stuck into each Science book. These are all to be found in the Science subject area on One Drive. Children are expected to complete some form of KWL chart [(K)what I know, (W)what I want to know, (L)what I learned] or mind map before

starting a new topic as these are effective tools for engaging students in the learning process, helping them recall knowledge, and tracking their learning progress, as well as useful for teachers to use to identify misconceptions and direct their planning.

### **Scientific Knowledge and Conceptual Understanding**

The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage.

Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary.

### **Spoken language**

The national curriculum for Science reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and articulating scientific concepts clearly and precisely. They must be assisted in making their thinking clear, both to themselves and others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

### **EYFS**

In Foundation Stage, science is not taught as a discrete subject, but instead is taught as part of Understanding the World, one of the seven areas of learning, which has strong links with Science, Geography and History. Through Understanding the World, children are taught to explore their immediate environment, both natural and built. They find out about the people who live in their environment and about animals, birds, plants and buildings. They compare these with people, animals, birds, plants and buildings in places outside of their familiar environment. In addition to this, early science skills such as exploration, investigation and testing ideas are encouraged through the Characteristics of Effective Learning.

### **Key Stage 1**

The main focus of science teaching in Key Stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They are encouraged to be curious and ask questions about what they notice. They are helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests and finding things out using secondary sources of information. They begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning is done through the use of first-hand practical experiences, but there is also some use of appropriate secondary sources, such as books, photographs and videos.

Pupils read and spell scientific vocabulary at a level consistent with their reading and spelling knowledge at Key Stage 1.

### **Lower Key Stage 2 – Years 3 and 4**

The main focus of Science teaching in Lower Key Stage 2 is to enable pupils to broaden their scientific view of the world around them. They do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple fair tests and finding things out using secondary sources of information. They draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out. They have opportunities to complete lab work through the facilities and staff at Abingdon School.

Pupils read and spell scientific vocabulary correctly and with confidence, using their growing reading and spelling knowledge.

### **Upper Key Stage 2 – Years 5 and 6**

The main focus of Science teaching in Upper Key Stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically.

At Upper Key Stage 2, they encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They also begin to recognise that scientific ideas change and develop over time. They select the most appropriate ways to answer Science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out fair tests and finding things out using a wide range of secondary sources of information. Pupils draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. Years 5 and 6 also have opportunities to complete lab work through utilising the facilities and staff at Abingdon School.

Pupils read, spell and pronounce scientific vocabulary correctly.

### **Inclusion**

Science is planned to meet the varied needs of all learners and forms part of the school curriculum policy to provide a broad and balanced education to all children. Learning objectives are set to meet these needs in line with our SEND policy. Our expectations do not limit pupil achievement. We recognise that Science may strongly engage our most able children and we aim to challenge and extend them.

### **Assessment**

By the end of each key stage, pupils are expected to know, apply and understand the

matters, skills and processes specified in the relevant programme of study. Assessment of this is achieved by end of topic assessments, through discussion with pupils, observation of pupils and marking work from Years 1 to 6. Assessment of pupil performance is supported by teachers' formative assessments and a variety of Assessment for Learning strategies where the children are involved in the process of self-improvement, recognising their achievements and acknowledging where they could improve. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expectations, this is recorded on Science Target Cards which are shared regularly with parents and will follow the children as they move up the school.

### **Cross-curricular links**

In our topic-based teaching approach, we use cross-curricular links to Science wherever we can. Science relates especially well to curriculum subjects such as English, Mathematics, Computing and Design and Technology.

### **Monitoring & Evaluation**

The Science Subject Leader will monitor and evaluate the teaching and learning of Science through work sampling, evaluation of planning, lesson observations and monitoring of data.

### **Health & Safety**

It is important that children are taught to use scientific equipment safely in Science from a young age so that it becomes integral to their experiments and investigations. Materials and equipment need to be treated with respect and care. When carrying out scientific activities at local secondary schools the children experience a fully equipped science laboratory and are taught how to approach and use the apparatus and equipment appropriately and safely. As a school we have adopted the ASE's safety guidance, Be Safe! Class Teachers, Teaching Assistants and the Subject Leader will check equipment regularly and report any damage, taking defective equipment out of action.

Teachers will ensure the school policy for Health and Safety is integrated into Science teaching.

### **Reporting to Parents**

Pupils' progress will be reported to parents through parent consultations and on the annual end of year report. Parents will also be able to monitor what their child is learning about and objectives they are achieving through their review of their child's Science Target Cards.

Science Policy Adopted: **September 2015**

Science Policy Reviewed: **January 2019**

Science Policy Reviewed: **January 2022**

Next review date: **January 2025**