



## Science Policy

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This policy covers:

- 1.1 Purpose of study
- 1.2 Aims and Objectives – Science Vision and Principles
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### **1.1 Purpose of Study** (The National Curriculum for science 2014)

*A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of 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 science can be used to explain what is occurring, predict how things will behave, and analyse causes.*

### **1.2 Aims and objectives**

1.1 Our objectives in the teaching of science are for all our children:

- to ask and answer scientific questions;
- to plan and carry out scientific investigations, with the correct use of equipment (including computers);
- to know about life processes of living things;
- to know about materials, electricity, light, sound, and natural forces;
- to know about the nature of the solar system, including the earth;
- to know how to evaluate evidence, and to present conclusions both clearly and accurately.



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As a school we have developed our science vision and principles. These will be displayed in every classroom.

### **SCIENCE VISION**

- Develop the children's conceptual understanding and the big ideas in science, and instil a sense of awe and wonder so that they are curious and want to do science for themselves.
- Opportunities for enquiry-based learning with investigations and practical hands-on science both in and out of the classroom environment.
- Instil an awareness of how science is relevant not just in the children's day to day lives but begin to appreciate the way in which science will affect the future on a national and global level.

### **SCIENCE PRINCIPLES**

## **Our Science Principles**



#### **Knowledge:**

We ask questions to explore concepts to help us to develop our knowledge and understanding



#### **Enquire**

- We are curious to learn more about our world
- We plan, do and review when working scientifically
- We use scientific vocabulary when enquiring and answering questions



#### **Enquire**

We know how to investigate practically with growing independence in and out of the classroom



#### **Enquire**

We are critical thinkers and understand the impact of science on the wider world.

*(These principles will be reviewed yearly)*

### **1.3 Role of science lead:**

- keep up to date with broad developments in science and science education, and consider how to share these with colleagues and pupils when appropriate
- be aware of, and take responsibility for, developments that affect school science policy, including health and safety
- be aware of, and take responsibility for, addressing gender stereotyping in science lessons and enrichment activities
- implement a whole-school vision for science, and advise and support colleagues on the pedagogy and appropriate resources to achieve it
- ensure that they access continuing professional development (CPD) for leadership of science, and that colleagues' access CPD to address their requirements too
- monitor provision of science and pupils' progress, and contribute to the strategic development of learning in school.

### **1.4 Teaching and learning style**

We use a variety of teaching and learning 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 ICT in science lessons because 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



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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.

We recognise that we have children of differing ability in all our classes, and we provide suitable learning opportunities for all children.

### **1.5 Science curriculum planning**

Science is a core subject in the National Curriculum. The school uses the National Curriculum for science as the basis of its curriculum planning.

We carry out our curriculum planning in science in three phases (long-term, medium-term and short-term). These plans help us to ensure an appropriate balance and distribution of work across the year.

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.

### **1.6 Early Years Foundation**

We teach science through 'understanding of the world' in the reception class 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 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.

### **1.7 The contribution of science to teaching in other curriculum areas**

#### **English**

Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. 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.

#### **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.

#### **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.

### **1.8 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.



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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.

### **1.9 Inclusion**

We are committed to equality of opportunity regardless of race, gender, cultural background, ability or any physical or sensory disability. We therefore aim to make science accessible to all and accommodate ourselves to individual needs as appropriate and in line with the school's Equal Opportunities Policy.

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 field trip and forest school, for example), we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

### **2.0 Assessment for learning**

Teachers will assess children's work in science by making judgements during lessons and end of unit tests/quizzes. Written or verbal feedback is given to the child to help guide his/her progress. Children are encouraged to make judgments about how they can improve their own work and if they have met the learning objectives and success criteria. We use assessment sheets and input assessment data into INSIGHT our whole school tracking system, to monitor progress.

### **2.1 Monitoring and review**

The quality of teaching and learning in science is monitored and evaluated by the Head teacher and senior management team.

The science lead is responsible for:

- supports colleagues in their teaching, by keeping informed about current developments in science and providing a strategic lead and direction for this subject;
- gives the headteacher an Action Plan to evaluate the strengths and weaknesses in science and indicates areas for further improvement. This is reviewed annually;
- reviews evidence of the children's work, observes science lessons across the school and talks to children about their science learning.

### **2.2 Health and Safety**

Children are encouraged to consider their own safety and the safety of others at all times. Teachers will provide a safe and secure environment for children to learn. Access to 'Be Safe' 4<sup>th</sup> edition for all staff regarding Health & Safety guidance in science.

### **2.3 Resources**

To make sure that teachers and children have access to fit for purpose resources



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