

# **SUTTON BENGER C.E. AIDED PRIMARY SCHOOL**

## **Science Policy**

### RATIONALE

Science stimulates and excites pupils' curiosity about phenomena and events in the world around them. It also satisfies their curiosity with knowledge. Because science links direct practical experience with ideas, it can engage learners at many levels. Scientific enquiry is about developing and evaluating explanations through experimental evidence and modelling. Through science, pupils understand how major scientific ideas contribute to technical change - impacting on industry, business and medicine and improving quality of life. Pupils recognise the cultural significance of science and trace its world-wide development. They learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world.

### AIMS

A high-quality science education provides foundations for understanding the world. Through building key knowledge and understanding of concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of curiosity about natural phenomena.

We aim for the children to:

- Become curious about the world around them and the things that they observe, experience and explore.
- Use their experiences to develop understanding of the key scientific ideas.
- Develop skills of sorting, classifying, questioning, planning, predicting and drawing conclusions from data.
- Acquire and refine practical skills necessary to investigate ideas and questions safely.
- Practise mathematical skills and enhance literacy skills within real contexts, as well as using technology to enrich their science learning.
- Develop language skills through talking about their work and presenting their findings.
- Use progressively technical scientific and mathematical vocabulary and draw diagrams and charts to communicate scientific ideas.
- Use a range of media, including technology, to extract scientific information.
- Work cooperatively with others, listening to their ideas and treating these with respect.
- Develop respect for the environment and living things, including themselves and each other.
- Develop responsibility for their health and safety and that of others when undertaking scientific activities.
- Have the right to equal opportunities in science regardless of their gender, race, religion, social background, physical or intellectual ability.

### SCIENCE CURRICULUM

We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop pupils' knowledge, skills, and understanding. Sometimes we do this through whole-class teaching, while at other times we engage the pupils in an enquiry-based small group activity. As much as possible, we aim to encourage learning through investigation, with an emphasis on first-hand experience.

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We encourage the pupils to:

- Ask, as well as answer, scientific questions.
- Participate in discussions on what they already know from experiences, what they have learnt so far and what they will be finding out next.
- Experience practical activities and investigation work. They will work within groups or individually, practising scientific skills, finding out answers and being encouraged to think scientifically.
- Use a variety of data, such as statistics, graphs, pictures, and photographs in their learning.
- Use technology in science e.g. data loggers used to monitor temperature or rainfall, digital microscopes and electrical circuits.
- Take part in role-play, discussions and presentation of reports to the rest of the class.
- Engage in a wide variety of problem-solving activities.

In the Early Years Foundation Stage, children primarily learn about science through the 'understanding of the world' area of learning. Science at this age is taught through topic work and the scientific aspects of the children's work relate 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 the objective in the ELGs of developing a child's knowledge and understanding of the world.

At Key Stage 1 pupils observe, explore and ask questions about living things and their habitats, materials and seasons. They also begin to learn about light and seeing, sound and hearing and electricity.

At Key Stage 2 pupils learn about a wider range of living things, materials and physical phenomena.

The school follows the National Curriculum 2014 for Science and the Early Years Foundation Stage Framework. Where suitable, adaptations have been made to suit our school's ethos e.g. inclusion of an introduction to light, forces and sound in Key Stage 1.

**Year 1:** Plants, animals (including humans), materials, seasons and an introduction to light and sound.

**Year 2:** Plants, animals (including humans), habitats, materials, movement and an introduction to electrical circuits.

**Year 3:** Plants, animals (including humans), rocks, materials, forces and magnets and light.

**Year 4:** Animals (including humans), habitats, materials, sound, electrical circuits and the Earth and its movements.

**Year 5:** All living things and their habitats, materials, forces, sound and Earth and Space.

**Year 6:** All living things and their habitats, evolution and inheritance, light and electrical circuits.

Science also plays a role in a wide range of other curriculum areas. It contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. The pupils develop oral skills in science lessons through discussions and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information. Science contributes to the teaching of mathematics in a number of ways. The pupils use weights and measures and learn to use and apply number. Through working on investigations they learn to estimate and predict. They develop the skills of accurate observation and recording of events. They use numbers in many of their answers and conclusions, such as representing data in graph form. Children may use technology to record, present or interpret their data, in addition to using it for research purposes.

Science makes a significant contribution to the teaching of personal, social and health education. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. For example, children might study the way people recycle material and how environments are changed for better or worse. Secondly, children benefit from the nature of the subject in that it gives

them opportunities to take part in debates and discussions. Health education is also taught as part of the understanding animals and humans theme.

In addition, 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, pupils 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 pupils about the reasons why people are different and, by developing the pupils' knowledge and understanding of physical and environmental factors, it promotes respect for other people.

## SCIENCE PLANNING AND ASSESSMENT

We carry out our curriculum planning in science in two phases (long-term and medium-term). The long-term plan maps the scientific topics studied in each term during the key stage. There is a two year curriculum in order for paired year group teachers to plan together (Years 1 and 2, Years 3 and 4, Years 5 and 6). Wherever possible we combine the scientific study with work in other subject areas, especially at Key Stage 1; at other times the pupils study science as a discrete subject.

Our medium-term plans give details of each unit of work. They provide information about individual lesson objectives and activities, differentiation, use of technology, support for SEND and challenge for AGAT. They can also contain questions the teacher may ask, any relevant vocabulary to be covered and opportunities for assessment.

Topics in science are planned so that they build upon prior learning. We ensure that there are opportunities for pupils 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 pupils are increasingly challenged as they move up through the school.

We assess children's work in science in a number of ways:

- By talking to the children and asking a range of questions.
- By making on-going informal judgements as we observe them during lessons, in both practical and written tasks.
- Through discussion of the learning with a child.
- Through pupil self-assessment and peer assessment of learning.
- On completion of a piece of work, the teacher marks the work and comments on how well the learning objective has been achieved, as appropriate.
- The teacher also annotates their medium term plan with their assessment comments, to show which children may need support in the subsequent lessons, or require challenge/extension tasks.

## RESOURCES

We regularly review resources for all science units in the school. We keep these in a central storage area to enable easy access for all teaching staff. The library contains a good supply of science topic books to support research into a subject. The school also subscribes to the Wiltshire and Swindon Learning Resources (WSLR) service, which enables teachers to borrow a wide variety of books, models, equipment, DVDs and resource packs to support the teaching of different science areas of learning.

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When planning activities, safety issues should be identified in detail in the medium-term plan and acted on accordingly. Children should be made aware of safety issues, and where appropriate, the reasons behind them. The school's Health and Safety policy provides further details regarding this.

## MONITORING AND REVIEW

This policy is to be monitored and reviewed by the science subject leader. The governors' Teaching and Learning Committee will also review and ratify this policy once every two years to ensure that the practice within the school matches the policy.

It is the responsibility of the science subject leader to:

- Monitor the standards of pupils' work and the quality of teaching in science.
- Support colleagues in the teaching of science.
- Be informed about current developments in the subject.
- Provide a strategic lead and direction for the subject in the school.

The science subject leader liaises with the link governor on an annual basis to review the work and progress in Science across the school.