



## Southwold Primary and Nursery School Science Policy

### Science Curriculum Intent

At Southwold Primary and Nursery School we aim for children to feel empowered to experience and observe the natural and human worlds around them, enabling them to broaden their view of these worlds and to develop a deeper understanding of the scientific ideas that have led to their development as they progress throughout the school.

Children will be filled with curiosity; answering and asking questions about what they notice and their subsequent ideas, through a mixture of scientific enquiry types and using the appropriate vocabulary for their age. Teaching will be a supportive tool for the exploration that takes place, allowing children to take an active lead in their learning.

### Aims

We aim to enable children 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 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 for the future.

### Science Curriculum

#### Early Years

As nursery and reception are part of the Foundation Stage of the National Curriculum, we relate the development of the children's knowledge and understanding of the world to the objectives set out in the EYFS (Early Years Foundation Stage). These underpin the curriculum planning for children aged three to five. Science makes a significant contribution to the objectives in the EYFS by developing a child's knowledge and understanding of the world. All topics and ongoing child and adult initiated activities, both inside and out, incorporate the EYFS objectives for exploration and investigation. We teach science in foundation stage classes as an integral part of the topic work covered during the year. We encourage the development of skills, knowledge and understanding that help nursery and reception children make sense of their world. These early experiences include asking questions about how things work, investigating and using a variety of resources that encourage exploration, observation, problem solving, critical thinking and discussion. These activities, indoors and outdoors, strive to attract the children's interest and curiosity.

#### Key stage 1

The principle 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. Children will be encouraged to be curious; ask questions about what they notice; and 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. Children will start to use simple scientific language to talk about, as well as reading and spelling, what they have found out and communicate their ideas to a range of audiences in a variety of ways.



Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

'Working scientifically' is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive science content in the programme of study.

### **Lower key stage 2**

The principle focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. Children will be 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. Children will be encouraged to 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 comparative and fair tests and finding things out using secondary sources of information – drawing simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

'Working scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study.

### **Upper key stage 2**

The principle 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. Children will 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 should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates; begin to recognise that scientific ideas change and develop over time; 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 comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should 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.

'Working and thinking scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study.

### **Teaching and Learning**

At Southwold Primary and Nursery School, we ensure that our Science curriculum is planned for and delivered using the six principles of learning providing rich opportunities for challenge, explanation, modelling, practice, questioning and feedback. We have high expectations for all pupils, all of the time. We encourage students to be resilient, question, have time to practice a skill and we support them in responding to modelling, feedback and



critique so they can improve their work and learning behaviours. We like them to be inspired by the excellent work of others. Challenge is the key driver of everything we do.

At Southwold, we follow the 'Mastery Learning Model' when we teach Science. This involves spending greater time securing the National Curriculum objectives. Previously, when children were moved through the different Science skills too quickly, it resulted in them having gaps in their knowledge because the concept they had just learnt was either too big or learnt too quickly. As a primary school, it is our duty to ensure that children have an absolutely solid, concrete understanding of Science skills as well as encouraging them to embrace challenge.

Our intention is to take learning at a measured pace, ensuring no child is left behind as well as providing deeper and richer experiences for children who are grasping ideas quickly. The children are only taught the content from their year group and not going beyond this.

In essence, this means working towards:

- **Teach less, learn more** – focussed content, evidencing learning and progress;
- **No child being left behind** – the majority of children are enabled to keep up every day;
- **Space and time** – to experience and apply, with all children entitled to additional support to ensure they do not fall behind or to be challenged in their learning and go deeper with their understanding;
- **Understanding real life applications** – wherever possible for learning to be relevant and not abstract, to teach with a clear purpose.

Effective learning in Science will occur as a result of creative, challenging and inclusive teaching that supports the learning needs of all individuals in the class. A variety of different techniques will be used to record their learning such as- big floor books, videos, voice recordings, photos, sticky note observations, animation, PowerPoint presentations .... All lessons will open with a warm up activity and with a science jigsaw focus piece (see Science Assessment). Science learning walls are displayed in all classrooms which will include a class jigsaw with age related objectives for working scientifically, key vocabulary, success criteria and examples of the learning to help support the children with their independent learning.

Planning by the class teacher will address the fact that children respond most effectively to those activities that appeal to their preferred learning style(s). Class teachers facilitate ICT opportunities only where it is deemed that value will be added to teaching and learning. Practical investigations, fieldwork, school trips, drama, Socratic debates and puppets are common features of teacher's planning that focus on challenging children's scientific knowledge and understanding, whilst at the same time developing crucial Speaking/Listening and social skills. Science, as with most Curriculum subjects at Southwold Primary and Nursery School, is delivered in the context of 'Cross-curriculum' where links to other subjects are forged to support the child's wider perspective of learning and thus of science as a whole.

### **Science Assessment**

An inclusive Curriculum should not rest on a child's ability to convey their Knowledge and Understanding of Science in written form. Subsequently, class teachers deploy a variety of assessment strategies to ascertain children's skills, development and knowledge and understanding. These range from: oral assessments/conversations to dramas, teacher observations and pupil self-assessment. Teachers' planning will ensure sufficient opportunities are provided to assess (and re-assess, if required) a child's progression within the subject. A clear progression of investigative skills ensures that children develop their ability



to question, predict, observe, fair test, measure, record, analyse, evaluate and conclude in a variety of contexts.

Planning is based around a current theme or topic with a focus on the Science Progression of Working Scientifically and Knowledge & Understanding, which will be used to ensure that planning meets the needs of the children and will challenge their skills, knowledge, understanding and any existing misconceptions: Predicting, Questioning, Researching, Sorting, Fair Testing, Measuring, Recording, and Concluding.

### **Performance**

It is the responsibility of the science curriculum champion to monitor the standards of children's work and the quality of teaching in science. The science curriculum champion is also responsible for supporting colleagues in the teaching of science, for being informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school. The science curriculum champion gives the principal and governing body an annual impact plan. The science curriculum champion has specially-allocated time for fulfilling the vital task of reviewing samples of children's work and visiting classes to observe teaching in the subject.

### **Race**

Science can be a powerful part of a school's curriculum to explore and contextualize cultural attitudes, values and beliefs. Hence, Science is used in school as a vehicle to challenge stereotypes and celebrate human and cultural diversity.

### **Equal Opportunities**

The teaching of Science supports equal opportunities by addressing the diverse needs of the individual. This is achieved in several ways:

- Creating comfortable and effective learning environments that encourage self-discipline, independence and motivation
- Providing a variety of teaching approaches in response to the learning styles of the children
- Using appropriate assessment strategies
- Teachers having high expectations reflected in the setting of challenging (but achievable) targets for the individual.

Signed: Mr Street

Date: July 2020