



## **Stokes Wood Primary School Science Policy (revised October 2022)**

### **Introduction**

#### **Definition of Science**

At Stokes Wood Primary School, we aim to deliver science education that is appropriate to pupils' age and ability, fulfilling and exceeding the requirements laid down in the science programmes of study: key stages 1 and 2 of the National Curriculum in England. We address the needs of all pupils, provide equal opportunities, regardless of race or gender, and take into account special educational needs. Stokes Wood Primary School provides pupils with a broad and balanced curriculum to develop scientific knowledge, understanding and skills across the key stages. We address the need for continuity and progression, paying attention to differentiation, assessment, key questions, acquisition of 'working scientifically' skills and opportunities for the use of ICT. As science is a 'core' subject in the National Curriculum, we ensure space is allocated in the timetable to teach science as a distinct subject, as well as making links to other areas of the curriculum. Our early-years science teaching, focused on a range of topics, is guided by the Statutory Framework for the Early Years Foundation Stage, through which children are given the opportunity to develop their understanding of the natural world.

#### **Rationale**

We agree with the 'purpose of study' outlined in the National Curriculum: 'High-quality science education provides the foundations for understanding the world. All pupils are taught the essential aspects of the knowledge, methods, processes and uses of science. By building up a body of key foundational knowledge and concepts, pupils are encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They are encouraged to understand how science can be used to explain what is occurring, predict how things will behave and analyse causes. At Foundation Stage, our science teaching is motivated by the Early Learning Goals related to 'the world' and 'technology': 'Understanding of the world involves guiding children to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment'.

#### **Aims**

We follow the National Curriculum for science to ensure that all pupils:

- develop scientific knowledge and conceptual understanding;
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them 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.

We follow the Statutory Framework for the Early Years Foundation Stage to ensure that all pupils:

- develop understanding of the natural world;
- acquire knowledge about everyday technology.



## **National Curriculum Coverage**

We follow the National Curriculum to ensure that pupils:

- develop a secure understanding of each key block of knowledge and concepts in order to progress to the next stage;
- use technical terminology accurately and precisely, building an extended specialist vocabulary;
- apply their mathematical knowledge to their understanding of science, and seek answers to questions, by collecting, presenting and analysing data;
- 'work scientifically' by focusing on the key features of scientific enquiry so they learn to use a variety of approaches to answer relevant scientific questions. Types of scientific enquiry include observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources.

We follow the Statutory Framework for the Early Years Foundation Stage to ensure that pupils:

- develop an understanding of the environment and living things; explore the properties of materials and their purposes; become familiar with scientific concepts.
- find out about, and use, everyday technology.

## **Equal Opportunities**

We foster equal opportunities for all our pupils as outlined in the 'Stokes Wood Single Equality Policy' and we aim to fulfil our duties under the Equality Act 2010 to eliminate discrimination, advance equality of opportunity and foster good relations. Stokes Wood Primary School personalises the learning journey of each child, supporting them to develop as confident, independent learners who will achieve challenging aspirations and contribute widely to the society of the future. We celebrate each child as a valued and unique individual and educate them within a caring, safe and inspiring environment, where they learn to respect themselves and others, and see themselves as a significant part of an effective team. The partnership, voice and contributions of the wider Stokes Wood community is essential in securing children who will become well-rounded, responsible, resilient, fulfilled and happy individuals. We believe our children should be helped to fulfil their potential and not be unfairly discriminated against because of gender, social or ethnic background, physical or intellectual ability, or disability.



## **Methodology**

### **Time**

Our children receive the equivalent of at least one science lesson per week, taught either as a distinct subject or linked to other areas of the curriculum. Outside this time, we take every opportunity to discuss scientific concepts through the study of the animals and plants in our surroundings: the Woodland Walk, Buttercup Garden, school fields, hedgerows and gardening club. We aim to capitalise on every opportunity to include science into our curriculum, for example, by studying natural phenomena such as eclipses. We enrich the curriculum by using resources such as Concept Cartoons, Explorify and Reach Out Reporter. We build links with external organisations by collaborating with institutions, such as universities, and STEM ambassadors. The science co-ordinator engages with the Leicester Primary Science network of science co-ordinators, the Primary Science Teaching Trust cluster of schools and the Association for Science Education.

### **Teaching and Learning Style**

Our aim is to give children a hands-on experience of science. Pupils learn by exploring the natural world and by carrying out investigations to develop their 'working scientifically' skills. The Snap Science scheme of work allows us to illustrate concepts through the use of photographs, videos, animations, sound files and interactive resources. By using a wide range of resources, as well as ICT, we cater for visual, auditory and kinaesthetic learners. Pupils generally work in mixed-ability groups so they benefit from peer support and improve their communication and social skills.

### **Planning, Continuity and Progression**

To ensure continuity and progression, we primarily follow the Snap Science scheme of work, published by Collins, which we augment with other resources and lesson plans for enrichment activities. Across the school, there is continuity and progression in:

- scientific enquiry through practical explorations and investigative activities;
- 'working scientifically' skills across modules and year groups;
- formative assessment in each lesson;
- use of ICT, including sound files, videos, animations and interactive resources;
- support to improve teachers' subject knowledge;
- differentiation through 'challenge' activities;
- evidence of children's attainment (measured against National Curriculum objectives and tracked by Target Tracker);
- assessment of National Curriculum objectives in each science topic, focusing on key knowledge

### **Cross Curricular Themes/Dimensions**

Where possible, we link science to literacy (for example, instruction and explanation texts), numeracy (data handling, including the use of data loggers), art, history and geography topics.



## **Key Skills**

We have high expectations for children's attainment in science, through which we aim to consolidate and enrich literacy, numeracy and ICT skills. Our principles are founded on:

- thinking – encouraging curiosity about the natural world;
- talking – developing scientific vocabulary;
- taking part – learning through practical experience.



### **Differentiation**

Class groupings and lesson planning are aimed at turning children into independent learners who are able to take responsibility for their own education. Pupils generally work in mixed-ability groups so they can support each other and develop communication and social skills by interacting with a wide range of personalities. Our expectation is for all children to be able to meet the learning objective in all lessons, with challenge activities available for those children who demonstrate excellent understanding and are able to work at a faster pace. Activities are designed to support struggling learners to allow them to make some progress.

### **Special Educational Needs**

Children with special educational needs generally work in mixed-ability groups so they benefit from peer support. Our aim is to fully immerse pupils in the classroom environment and avoid 'segregating' children, either through 'interventions' or 'lower-ability' groups, which can have the consequence of lowering expectations and lead to lower attainment. Teachers are aware of Stokes Wood's 'Special Educational Need or Disability' policy.

### **Parental Involvement**

Parents are invited to school to observe their children learning science. Pupils are able to show off their knowledge at focus weeks, open evenings and special occasions such as British Science Week.

### **Liaison with Other Schools**

By networking with science co-ordinators in Leicester and Leicestershire, the subject leader at Stokes Wood is able to keep abreast of developments in science teaching and best practice. We seek opportunities for our children to work with their peers at other schools.

### **Health and Safety**

Teachers have access to 'Be Safe!', which offers health and safety guidance for the range of situations that may be encountered in the primary classroom. Information is also available from CLEAPSS, an advisory service providing support in science and technology. See the 'Health and Safety' policy.

### **Inset and Professional Development**

The science co-ordinator is responsible for leading continuous professional development in the subject and identifying opportunities for teachers to improve their practice and subject knowledge. In-school training, on a range of issues, from pedagogy to resources, is provided by the science co-ordinator and all teachers are encouraged to attend out-of-school courses. Training needs are identified through skills audits and questionnaires.



### **Role of the Science Co-ordinator**

The science co-ordinator is responsible for:

#### **Organisation**

- monitoring the status of science at Stokes Wood;
- co-ordinating the organisation of science;
- maintaining a subject leader's file;
- securing an annual budget.

#### **The curriculum**

- ensuring that children receive their entitlement to science;
- ensuring provision for all pupils, including children with 'special educational needs and disability', 'gifted and talented' and 'English as an additional language' children;
- ensuring progression.

#### **Resources**

- carrying out an audit of science equipment;
- purchasing new equipment;
- organising resources;
- ensuring health and safety guidelines are followed.

#### **Assessment:**

- setting guidelines and principles for the assessment of science;
- monitoring the impact of assessment on learning;
- using assessment data to improve teaching practice.

#### **Driving improvement:**

- setting the principles that underpin science teaching;
- monitoring, evaluating and developing the quality of science;
- supporting colleagues;
- seeking the support of the head teacher, senior leadership team and governors;
- keeping up to date with contemporary science thinking;
- leading the subject.

#### **Enhancement and engagement**

- celebrating science;
- enhancing science;
- working with the wider community.



## **Resources**

### **Organisation**

Most science resources are stored systematically in the science cupboard. Users are given guidance on the care and storage of resources. Some equipment is kept in classrooms and teaching staff are notified about the availability of these resources. Purchases are made to replace broken equipment and keep up with modern technology to meet the needs of the National Curriculum. A budget is set aside each year for everyday resources, such as food and plants, which are needed to facilitate practical science teaching.

### **Written sources**

Snap Science lesson plans and electronic resources are available online. A wide range of downloadable resources, including from Snap Science, have been stored on the Stokes Wood computer network. As resources can be stored on computers, it is not necessary to print them off, thus avoiding the need for space and expense of paper storage.

### **Practical Equipment**

Investigations and experiments are at the heart of our science teaching as they give children hands-on experiences of complex concepts. We are continually increasing the range, and improving the quality, of our resources to allow us to meet the requirements of the National Curriculum. Resources are stored in the science cupboard and in classrooms.

### **Outside Resources**

We take opportunities to borrow equipment from outside agencies. By networking with other schools, we also have the ability to share resources. The science co-ordinator attends meetings of Leicester Primary Science (collaboration between science co-ordinators from Leicester and Leicestershire), the Primary Science Teaching Trust cluster of schools and the Association for Science Education. These meetings allow the science co-ordinator to disseminate information about resources and pedagogy among teachers at Stokes Wood.

### **Funding**

Opportunities are taken to apply for funding from outside organisations to help Stokes Wood develop science teaching. Stokes Wood will continue to apply for support from these organisations, as well identifying further opportunities for financial and pedagogical support from other agencies.

### **Educational Visits**

Stokes Wood welcomes opportunities to develop learning outside the classroom. We are expanding our educational visits to tie in with science teaching, across all year groups, to enrich the science curriculum. See 'Trips and Residentials' policy.



## **Review**

### **Assessment**

Effective assessment is about feedback to address misconceptions and 'feed-forward' to inform the next stage of children's learning. Teachers use a variety of 'assessment for learning' strategies to influence pupils' progress in the current lesson and to plan the next lesson. Teachers may use end-of-unit formal assessments, as part of the Snap Science scheme of work, to moderate their judgements of pupils' attainment. Children's ability to work scientifically is tracked against National Curriculum statements using the Target Tracker system. Evidence is collected in a variety of forms, including books, photographs, videos, annotated lesson plans and displays. See 'Marking, Display and Presentation' policy.

### **Recording**

Stoke Wood's coverage of the National Curriculum is outlined in the long-term plan for science. Children's work is captured in a variety of ways, including books, photographs, videos, annotated lesson plans and displays. With the support of the head teacher and the senior leadership team, the science co-ordinator is responsible for monitoring teaching and pupil engagement throughout the school. Monitoring includes the scrutiny of book, observation of lessons and collaboration between teachers (through the school's 'Lesson Study' model) to improve the quality of teaching.

### **Reporting**

At the autumn and spring parents' evenings, parents are informed, in general, about pupils' progress. More detailed feedback on children's attainment in science is provided through the end-of-year report in the summer term. The science co-ordinator is responsible for reporting to the governors, head teacher and the senior leadership team about the quality of teaching and children's attainment at Stokes Wood.

### **Marking**

Children's achievement of 'working scientifically' objectives is recorded in books. Verbal feedback is valued too. It is essential that each pupil is aware of their personal target, the learning objective and success criteria set for the lesson. The teacher must adhere to this when marking. We encourage self and peer-assessment of pupils' work. Written comments should indicate areas to be developed and strategies the child can use to move towards achieving specified targets. We believe it is important that teachers recognise and reward the effort a pupil has made. See 'Marking, Presentation and Display' policy.

### **Monitoring and Evaluating**

Stokes Wood's priorities in science are outlined in the annual action plan drawn up by the science co-ordinator. Monitoring and evaluation of the action plan is carried out by the governors, head teacher and the senior leadership team.

### **Date for policy review and who is responsible**

This science policy should be reviewed annually or as required.