



## Science Policy

### Introduction

At Holbrook we strive for excellence in education by providing a safe, secure, caring family environment, where all are valued and respected as individuals, enabling them to reach their full potential.

### Aims

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

- 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.

### Rationale

A high-quality Science education provides 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.

In teaching Science we are developing in our children:

- A positive attitude towards Science and an awareness of its fascination;
- An understanding of Science through a process of enquiry and investigation;
- Confidence and competence in scientific knowledge, concepts and skills;
- An ability to reason, predict, think logically and to work systematically and accurately;
- An ability to communicate scientifically;
- The initiative to work both independently and in co-operation with others;
- The ability and meaning to use and apply science across the curriculum and real life.

### Planning with the National Curriculum 2014

#### **School curriculum**

The programmes of study for Science are set out year-by-year for Key Stages 1 and 2. Within each key stage, School has the flexibility to introduce content earlier or

later than set out in the programme of study and may introduce key stage content during an earlier key stage if appropriate.

Teachers will base their planning on the programmes of study for their relevant year groups.

### **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. They should also apply their mathematical knowledge to their understanding of Science, including collecting, presenting and analysing data.

### **The nature, processes and methods of science**

'Working scientifically' specifies the understanding of the nature, processes and methods of Science for each year group. It should not be taught as a separate strand.

### **Attainment targets**

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.

### **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 should be encouraged to be curious and ask questions about what they notice. They should be 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 should 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 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.

Pupils should 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 should 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 should 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 should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

'Working scientifically' must **always** be taught through and clearly related to substantive Science content in the programme of study.

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

### **Upper Key Stage 2 – Years 5-6**

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 should 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. They should also begin to recognise that scientific ideas change and develop over time. They should 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 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. Pupils should read, spell and pronounce scientific vocabulary correctly.

'Working and thinking scientifically' must **always** be taught through and clearly related to substantive Science content in the programme of study.

### **Resources and access**

The school acknowledges the need to continually maintain, update and develop its resources by investing in resources that will effectively deliver the strands of the National Curriculum and support the use of Science across the school. Resources if not classroom based are located in the resources room.

### **Inclusion**

At Holbrook we plan to provide for all pupils to achieve, including boys and girls, higher achieving pupils, gifted and talented pupils, those with SEN, pupils with disabilities, pupils from all social and cultural backgrounds, children who are in care and those subject to safeguarding, pupils from different ethnic groups and those from diverse linguistic backgrounds.

### **Equal Opportunities**

Staff at Holbrook Primary School are aware of the issues related to gender and Science and, in particular the difference in performance between boys and girls. Teachers need to consider this in their planning and delivery of the Science Curriculum.

### **Assessment and Recording**

Formative ongoing assessment is key to the planning and teaching of the Science Curriculum. Teachers record the progress of pupils on Target Tracker and this will be monitored by the subject leader at points throughout the year.

### **Monitoring and Evaluation**

The quality of the teaching in Science, the standards attained by pupils and their progress will be a feature of the school's monitoring of learning, teaching and pupil progress.

The Subject leader for Science will review the progress of pupils through records, learning walks, scrutiny of work, classroom visits and pupil conferencing. The Subject Leader for Science will report annually to Governors.

### **Safety**

The school follows COSHH guidance 'Be Safe'.

### **Marking Work**

Marking in Science relates to the whole School Marking Policy. Children are expected to respond to feedback marking using purple pen comments in KS2 and verbal feedback in KS1 is adequate but must be signalled in the marking of children's work.

### **Conclusion**

This policy should be considered alongside other relevant policies. It will be reviewed by the governing body as part of its schedule of review policy.