

# Hawkshead Esthwaite Primary School

## Science Policy



### Rationale

At Hawkshead School, we believe that science will lead to a better understanding of ourselves and the world in which we live. It provides opportunities to appreciate scientific facts and concepts and to experience scientific discovery. Because science links practical experience with ideas, it can engage learners at many levels.

### Aims of our Science Curriculum

- Engage children as learners through linking ideas with practical experience;
- Help children to learn to question and discuss scientific issues that may affect their own lives;
- Help children develop, model and evaluate explanations through scientific methods of collecting evidence using critical and creative thought;
- Show children how major scientific ideas contribute to technological change and how these impact on improving the quality of our everyday lives;
- Help children recognise the cultural significance of science and trace its development.
- Increase the child's knowledge and understanding of the world.
- Develop attitudes of curiosity, originality, co-operation, perseverance, open mindedness, self-criticism, responsibility and independence in thinking.
- To enable children to effectively and confidently communicate their scientific predictions and discoveries through the opportunity to observe, describe, illustrate, hypothesise, evaluate and interpret, using appropriate scientific vocabulary
- To develop children' understanding of the effects of their actions on the environment.

### Implementation of Policy

We have created a well sequenced and progressive curriculum map which ensures that each topic in the National Curriculum is covered as children move through a key stage in our mixed age classes. Our curriculum contains the key concepts children need to be procedurally fluent in, and opportunities to work and think like professional scientists. We aim to teach science in ways that are imaginative, purposeful, well managed and enjoyable. Teachers will give clear and accurate explanations and offer skilful questioning, whilst making links between science and other subjects.

### Science pedagogy is based on the development of these key scientific concepts:

- **Conceptual understanding**
- **Processes**
- **Skills of enquiry**
- **Scientific attitudes**

At Hawkshead School good science lessons should:

- ✓ *Share a learning focus at the start, which is relevant throughout the lesson and is concluded at the end.*
- ✓ *Give opportunities for speaking and listening.*
- ✓ *Have questions of different levels and styles with opportunities for children to confer and discuss their ideas.*
- ✓ *Have interesting and varied activities.*
- ✓ *Have opportunities for assessment for learning such as self marking to evaluate own understanding.*
- ✓ *Allow for discussion of misconceptions.*

At Hawkshead School, teachers aim to present science in practical contexts which are relevant to the children's experiences. This will involve learning in class, group and individual situations. Some content is taught directly but enlivened through practical demonstrations. Small group activities follow on from class discussion and encourage collaboration. Where possible, children are encouraged to investigate their own questions, make decisions for themselves and maintain a high level of motivation. Children communicate their findings in a variety of ways such as diagrams, photos, drama, written reports, short talks and demonstrations.

At Hawkshead School we use ICT where applicable in science. Children are given the opportunity to practice science skills and enhance their presentation using software. We use ICT for investigative work, including microscopes, digital cameras for capturing images and video, data loggers and websites for research.

At Hawkshead School, science is celebrated around the school and community through displays of work, posts on social media and photographs on our school website. We use cross-curricula links to science with other subjects such as Design Technology, Maths and English, where Science topics can be a theme for our writing projects. There is a strong link with Science and our outdoor learning lessons in Fletcher's Field, where children experience plant growth, habitats, sustainability and food production. Where applicable, the Science curriculum is complimented with trips and workshops.

### **Early Years Foundation Stage**

At Hawkshead School, children in EYFS will be introduced to science through the Early Years Foundation Stage (EYFS) Framework. The Early Learning Goals (ELGs) for 'Understanding of the World' form the foundation for later work in science, design and technology, history, geography and ICT.

Wherever possible the children are provided with activities based on firsthand experience that encourage exploration, observation, problem solving, prediction, critical thinking, decision making and discussion. We provide an environment with a wide range of indoor and outdoor experiences that stimulate their interest and curiosity, and include opportunities for child led exploration and investigation.

### **KS1**

The KS1 curriculum follows the National Curriculum, ensuring all areas of the Programme of Study are covered across both Years 1 and 2 on a two year rolling programme. Children further develop their understanding of the world around them which they have gained in the Foundation Stage.

Children observe, explore and ask questions about living things, materials and physical phenomena. They work together to collect evidence to help them answer questions and to link this to simple scientific ideas. They begin to evaluate evidence and consider what tests or comparisons are showing them. Children are encouraged to share ideas and communicate them using scientific language, drawings, charts and tables with the help of ICT where appropriate.

## **KS2**

The KS2 curriculum follows the National Curriculum, ensuring all areas of the Programme of Study are covered across Years 3, 4, 5 and 6 in a two year rolling programme. The children learn about a wider range of living things, materials and physical phenomena and build upon their knowledge and understanding from KS1. They make links between ideas and explain things using simple models and theories. They apply their knowledge and understanding of scientific ideas to familiar phenomena, everyday things and their personal health. They carry out more systematic investigations, working on their own and with others. They use a range of reference sources including ICT in their work. They talk about their work and its significances, using a wide range of scientific language, conventional diagrams, charts, graphs and ICT to communicate their ideas.

## **Progression**

As children move from Early Years to KS1 and up to KS2, a robust curriculum, good science teaching and effective assessment should allow opportunities for them to progress in a range of ways.

- *From using everyday language to increasingly precise use of technical, scientific vocabulary, notation and symbols;*
- *From personal scientific knowledge in a few areas to understanding in a wider range of areas and knowing how these links together;*
- *From describing events and phenomena to explaining events and phenomena;*
- *From explaining phenomena in terms of their own ideas, to explaining phenomena in terms of scientifically accepted ideas or models;*
- *From participating in adult lead practical, scientific investigations to developing and undertaking their own scientific investigations, independently;*
- *From unstructured exploration to more systematic investigation of a question or questions developed independently;*
- *From using simple drawings, diagrams and charts to represent and communicate scientific information, to using more conventional diagrams and graphs.*

## **Health and Safety**

All children will be made explicitly aware of the relevance of health and safety issues when undertaking scientific work. This will be specifically highlighted when they are asked to undertake scientific investigations, with additional adults being used effectively to assist with the safe running of all science lessons.

## **Resources**

We have a range of resources boxes for science topics in the central store cupboard. Non-fiction books are stored in the library and supplemented by topic book collections from the local Library Service. Equipment will be updated and replaced as required.

## **Monitoring**

At Hawkshead School monitoring of the standards of children's' work and of the quality of teaching in science is the responsibility of the science coordinator to ensure continuity and progression throughout the school. The role of science coordinator also involves being informed about current developments in the subject, and providing a strategic lead and direction for the subject in school. From the monitoring process, an action plan to improve and enhance the science curriculum is formulated for the forthcoming year.

## **Equal Opportunities**

At Hawkshead School we believe that every individual within the school has the opportunity to achieve their full potential has the same chance and equal access to all areas of the curriculum.

In science this means that all children will have the opportunity;

- *To develop the process of systematic enquiry*
- *To relate their understanding of science to everyday life and in environmental contexts*
- *To communicate using appropriate vocabulary and present scientific information in a number of ways*
- *To explore aspects of health and safety when working with living things and materials*
- *To carry out experimental and investigate science*
- *To develop and apply their ICT capability in their study of science Staff members make every effort to use stimuli that reflect the cultural diversity of our school and to draw on children own experiences.*

## **Assessment**

A range of assessment techniques will be used depending on the nature of the lesson, knowledge acquired, or the skills used. They may be assessed through teacher observation or discussion, end of unit quizzes or mini projects which allow children to demonstrate their knowledge and understanding. Assessment is recorded and progress tracked through our online assessment system.

## **The Role of the Science Subject Leader**

The Science subject leader will:

- *Ensure the development of a progressive curriculum map, monitor its implementation and impact.*
- *Promote the integration of Science within appropriate teaching and learning activities;*
- *Manage the provision and deployment of resources and give guidance on classroom organisation support;*
- *inspire colleagues to deliver high quality teaching and learning opportunities;*
- *Act as a contact point between the school and support agencies, including the LA;*
- *Analyse data to identify strengths and weaknesses in outcomes; planning for improvement accordingly.*
- *write, monitor and evaluate an action plan.*

- *Lead the evaluation and review of the school's Science policy.*
- *Monitor and review the science provision within the school*

### **Disability Equality Impact Assessment**

This policy has been written with reference to and in consideration of the school's Disability Equality Scheme. Assessment will include consideration of issues identified by the involvement of disabled children, staff and parents and any information the school holds on disabled children, staff and parents.

***Any questions or concerns regarding this policy should be made to Paula Bowen.***