



HILL WEST  
*Primary*

FOUR OAKS

# SCIENCE POLICY

Hill West Primary School is a member of the Arthur Terry Learning Partnership

# HILL WEST PRIMARY SCHOOL

## SCIENCE POLICY

### INTENTIONS OF THE POLICY

This policy is intended to be read by teachers, teaching assistants, parents and governors of the school, and by members of the ATLP community to guide and govern the principles of teaching in science.

At Hill West, we strive to offer our children a rich, varied and engaging curriculum that will enable them to reach their full potential and become life-long learners.

### OUR AIMS

In science, our aim is that all children make at least good progress and, alongside this, develop a real love and enthusiasm for the subject. Science lessons are delivered thematically in blocked learning time and through weekly subject specific lessons. We believe that a high quality, broad and well-structured science curriculum acts to stimulate, inspire and satisfy our children's curiosity about natural phenomena and events in the world around them, whilst allowing them to make direct links between the practical and theoretical fields of science. Through the teaching of science, children will learn to question, hypothesise, observe, predict and analyse information whilst developing a secure understanding of how scientific theories have developed and evolved through time. They will begin to understand and discuss science-based issues that affect their own lives, wider communities and those that impact on a global scale. We ensure this happens by aiming:

- To develop children's enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life
- To build on children's curiosity and sense of awe of the natural world
- To use a planned range of investigations and practical activities to give children a greater understanding of the concepts and knowledge of science
- To introduce children to the language and vocabulary of science
- To develop children's basic practical skills and their ability to make accurate and appropriate measurements
- To develop children's use of computing in their science studies.
- To extend the learning environment for our children via our environmental areas and the locality
- To promote a 'healthy lifestyle' in our children.

## OBJECTIVES

The following objectives derived from the above aims will form the basis of decisions when planning and assessing children:

### ***To develop children's enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life.***

- To develop a knowledge and appreciation of the contribution made by famous scientists to our knowledge of the world, including scientists from different cultures
- To encourage children to relate their scientific studies to applications and effects within the real world
- To develop knowledge of the science contained within the programmes of study of the National Curriculum.

### ***To build on children's curiosity and sense of awe of the natural world***

- To develop in children a general sense of enquiry which encourages them to question and make suggestions
- To encourage children to predict the likely outcome of their investigations and practical activities

### ***To use a planned range of investigations and practical activities to give children a greater understanding of the concepts and knowledge of science***

- To provide children with a range of specific investigations and practical work which gives them a worthwhile experience to develop their understanding of science  
To progressively develop children's ability to plan, carry out and evaluate simple scientific investigations and to appreciate the meaning of a 'fair test'.
- To develop the children's ability to record results in an appropriate manner including the use of diagrams, graphs, tables and charts

### ***To introduce children to the language and vocabulary of science***

- To give children regular opportunities to use the scientific terms necessary to communicate ideas about science

### ***To develop children's basic practical skills and their ability to make accurate and appropriate measurements***

- Within practical activities give children opportunities to use a range of simple scientific measuring instruments such as thermometers and force meters and develop their skill in being able to read them.

### ***To develop children's use of technology in their science studies***

- To give children opportunities to use technology (video, digital camera, data logger) to record their work and to store results for future retrieval throughout their science studies
- To give children the chance to obtain information using the internet.

## ENTITLEMENT

All our children, irrespective of a protective characteristic are entitled to participate fully in Science, and benefit from a broad range of highly effective Science teaching and learning activities at every stage of their education. We are committed to ensuring that children experience success in this subject. Although work in Science can be blocked and taught intensively over short periods, all children are entitled to:

- Regular individual Science subject discipline lessons.
- Have access to the full range of activities involved in learning Science.
- Provision of suitable learning challenges that respond to each child's different needs.
- Differentiation, additional or different action to enable the child to learn more effectively.
- Intervention, through the setting of small targets identified following assessment against their Learning Journey.
- The use of well-told stories, interactive displays, role-play and drama, collaborative as well as individual learning, problem solving, debates and the incorporation of visits to extend children's experience of Science (e.g. The Big Bang Exhibition in Year 5).

We aim to:

- Teach a minimum of 12 hours of science lessons per half term although this can be blocked and taught intensively over short periods.
- Teach science in a broad global and historical context, using the widest possible perspective and including the contributions of people of many different backgrounds.
- Provide a balanced and varied programme of scientific skills, knowledge, understanding and attitudes.
- Teach science through a variety of individual, group and whole class teaching, providing equal learning opportunities for all children.
- Value children's existing ideas, experience and knowledge and use this as a foundation to build a schema of knowledge whilst challenging misconceptions.
- Provide children with regular opportunities to participate in active exploratory work, with an increasing degree of self-planning and control, allowing them to make links between practical experiences and theoretical fields of science.
- Provide children with access to a wide range of high quality, engaging science resources that will stimulate their curiosity and develop skills of enquiry.
- Acknowledge science as a vehicle for the development of language skills and encourage our children to talk constructively about their science experiences.

## ATTITUDES AND COMPETENCIES TO BE DEVELOPED

A guarantee of quality Science curriculum provision, complementing National Curriculum guidance, will ensure that by the end of each key stage, children know, apply and understand the matters, skills and processes specified in the relevant programme of study.

During the **Early Years Foundation Stage**, science is included in one of the specific areas of learning

outlined in **Development Matters** known as 'Understanding of the World.' During these years, science allows children to make sense of the world around and allows them to begin to develop their skills of enquiry. This occurs through:

- access to a range of developmentally appropriate practical activities based on first hand exploratory experiences. For example, a nature walk, magnifiers to explore natural objects, manipulating wet/dry sand etc;
- enthusiastic and meaningful interaction with adults, who provide opportunities to develop communication skills, use correct scientific language and carefully framed open-ended questioning techniques to develop thinking skills;
- exploration of both indoor and outdoor environments, linking all areas of learning;
- recognition/extension of existing knowledge & understanding gained from their home setting.

In Key Stage 1, the main focus of science teaching is to enable children to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them and building on knowledge and understanding developed during EYFS. Children 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.

Children should read and spell scientific vocabulary at a level consistent with their reading and spelling knowledge at Key Stage 1.

In Lower Key Stage 2, the main focus of science teaching is to enable children 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. Children should read and spell scientific vocabulary correctly and with confidence, using their growing reading and spelling knowledge.

In Upper Key Stage 2, the main focus of science teaching is to enable children 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, children 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. Children 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. Children should read, spell and pronounce scientific vocabulary correctly.

**Across all key stages, all work in science should have a key focus on developing enquiry skills outlined in the ‘Working Scientifically’ strand of the National Curriculum.** The types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and controlled investigations and researching using secondary sources. Children should seek answers to questions by collecting, analysing and presenting data.

## PLANNING FOR PROGRESSION AND CONTINUITY

	Physics	Biology	Chemistry
Year 1	Seasonal Changes	Plants Animals (inc. Humans)	Everyday Materials
Year 2		Plants Animals (inc. Humans) Living Things and Their Habitats	Everyday Materials
Year 3	Light Forces and Magnets	Plants Animals (inc. Humans)	Rocks
Year 4	Sound Electricity	Animals (inc. Humans) Living Things and Their Habitats	States of Matter
Year 5	Earth and Space Forces	Animals (inc. Humans) Living Things and Their Habitats	Properties and Changes of Materials
Year 6	Light Electricity	Animals (inc. Humans) Living Things and Their Habitats Evolution and Inheritance	

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We recognise that in all classes

there are children of widely-different abilities in Science and we seek to provide suitable learning

opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this by:

- Setting common tasks which are open-ended and can have a variety of responses;
- Setting tasks of increasing difficulty. Not all children complete all tasks;
- Providing resources of different complexity depending on the ability of the child;
- Using teaching assistants (where available) to support children individually or in groups.

Teaching of the Science curriculum is delivered in a variety of ways catering for all learning styles through but not exclusively;

- Well-told stories
- Questions and answers in whole class discussions
- Differentiated tasks
- Individual/group/class projects
- Thinking skills using mind mapping techniques
- Interactive displays
- Role play and drama
- Sequencing to develop scientific ideas
- Shared learning where pupils are encouraged to help one another.
- Problem solving, debates
- Educational visits to places that develop scientific knowledge and understanding

## **ASSESSMENT AND RECORDING**

Assessment is an integral part of the learning process and is undertaken through observing pupils at work, questioning, talking and listening to pupils and marking work produced. At the end of a unit of work, the teacher makes a summary judgement about the work of each pupil in relation to the National Curriculum objectives and our in-school progressive 'Learning Journeys' / Schemes of Work.

Monitoring of the standards of children's work and of the quality of teaching in Science is the responsibility of the Curriculum Leads (AHTs). Medium term planning will be monitored to ensure continuity and progression throughout the school. Children's work will be monitored through regular pupil progress discussions which look at the work that has been completed alongside the planning and quality of teaching and learning. Feedback will be provided to staff as soon as possible highlighting both strengths and areas for development. Parents will be provided with a written report about their child's progress during the Summer term every year. These will include information on pupil's end of year attainment in Science and may include any areas of strength or areas for development that the teacher may wish to highlight.

In addition to formative assessment, summative assessments are also used across the school to assess the progress a child has made by the end of a scientific unit or at a period in time. In all year groups, children complete mid-topic or end of unit 'Rising Stars' tests, which are used to support teacher

judgments for progress and attainment against year group expectations.

## **MONITORING AND REVIEW**

This policy will be reviewed on an annual basis by the Headship team. The curriculum leaders will monitor teaching and learning in the subject at Hill West primary school, ensuring that the content of the national curriculum is covered across all phases of pupils' education.