HILLTOP PRIMARY SCHOOL

Science Policy

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A Beyond SCHOOLS TRUST ACADEMY

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Rationale

Science plays a crucial role in developing our understanding of the world around us. Our science teaching helps us to prepare children through experiences and exploration of the world in which they live in. Children can discover, explain, and develop skills of enquiry through working scientifically. We aim to prepare children for life in an increasingly scientific and technological world. To develop scientific thinking, we build on children's natural curiosity and enthusiasm for learning. We believe a practical, inspiring, and challenging Science curriculum is the entitlement of all our children. In all our lessons, we encourage children to become better learners.

Hilltop uses a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's knowledge, skills and understanding in science and to develop an enquiring mind, using our school focus of RECIPE LIC. We do this through lessons which include a mix of whole class, group work, paired work, and individual teaching. We encourage children to ask and answer scientific questions and wherever possible, we encourage the children to use and apply their learning in everyday situations. We use ICT and the interactive whiteboards to enhance the children's learning where appropriate.

Aims

Our aims in teaching science are that all children will:

- develop a curiosity about the world in which they live.
- develop an interest and enthusiasm for science and scientific thinking.
- develop a conceptual understanding of science, a range of scientific skills and scientific knowledge.
- be equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.
- develop an 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.
- build skills to work both independently and cooperatively.
- be open minded, creative and show perseverance.

Provision in the Early Years

Science in the Early Years is introduced indirectly through activities provided within the provision that encourage the children to explore, problem solve, observe, predict, think, make decisions and talk about the world around them. Scientific learning falls mainly within the objectives found within 'knowledge and understanding of the world'. Early Years science also helps children with skills in other Foundation Stage areas of the curriculum, such as physical development and creative development.

- Children explore creatures, people, plants and objects in their natural environments.
- They observe and manipulate objects and materials to identify differences and similarities.
- Children also learn to use their senses; feeling dough or listening to sounds in the environment.
- Children are encouraged to ask questions about why things happen and how things work.
- They ask questions about what they think will happen to help them communicate, plan, investigate, record and evaluate findings.
- Children explore creatures, people, plants and objects in their natural environments.
- They observe and manipulate objects and materials to identify differences and similarities.
- Children will also learn to recognise changes that happen to the body when they are active. They will also learn about the importance of keeping healthy and the things that contribute to this by, for example, cooking or identifying fruit and vegetables.
- Children collect materials, such as rough sandpaper, soft fabric and shiny bottle tops to build a sensory wall. They explore colour, texture, shape, form and space by mixing colours, painting, modelling and dancing.
- They also learn about sounds - how they can be changed and how to imitate sounds they hear.

In KS1 children should:

- Observe, explore and ask questions about living things, materials and the world around them.
- Work together to collect evidence to help answer questions.
- Use reference materials to find out more about scientific ideas.
- Share their ideas and communicate them using scientific vocabulary and drawings.

In KS2 children should

- Apply their knowledge and understanding of scientific ideas to familiar phenomena, everyday things and their personal health.
- Carry out more systematic investigations, working on their own and with others.

- Communicate their ideas using a wide range of scientific language, conventional diagrams, charts and graphs.

Guidelines

All children are entitled to access to the National Curriculum for Science.

Planning is in line with the National Curriculum for KS1, KS2 and EYFS

Resources are stored in the Science cupboard.

Vocabulary is displayed in each classroom to support and develop children's understanding of scientific language.

Key skills

The key skills map was developed to help inform our planning, understand the national curriculum coverage, embed SFL values and ensure progression within Science. It also helps us to stretch children and prepare them for beyond primary school. It helps to develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry, and physics. Build on the understanding of the nature through different types of science enquiries that help them to answer scientific questions about the world around them. Children at Hilltop are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future, alongside our RECIPE LIC values.

Teaching and Learning

Planning for Science is a process in which all teachers are involved, to ensure that the school gives full coverage of the Science National Curriculum and Development matters. It is kept as practical as possible, allowing children to have first-hand experiences, to explore for themselves thus stimulating their curiosity. Science teaching in the school is about children developing skills, knowledge and independence when investigating practically. We adapt and extend the curriculum to match the varied needs of the children in our school.

Teachers should use the Kent Scheme of work to support their planning and teaching of Science across key stages 1 and 2. This is available on the shared area for all to access.

Inclusion

Science is taught within the guidelines of the school's Equal Opportunities Policy.

Teachers ensure that all our children have the opportunity to gain science knowledge and understanding regardless of gender, race, class or ability.

Our expectations do not limit pupil achievement and assessment does not involve cultural, social, linguistic or gender bias.

Science is taught in a broad global and historical context, using the widest possible perspective and including the contributions of people of many different backgrounds.

We value science as a vehicle for the development of language skills, and we encourage our children to talk constructively about their science experiences.

In our teaching, Science is closely linked with Literacy and Mathematics.

We exploit Science's special contribution to children's developing creativity; we develop this by asking and encouraging challenging questions and encouraging original thinking.

Teachers set tasks which are open-ended and can have a variety of responses;

Teachers will provide support and challenge for all learners regardless of starting point;

Resources provided will be carefully considered to support and challenge all children.

Children will have the aid of classroom assistants to help and encourage them with challenge and support.

ICT in Science

We aim to use ICT in all areas of Science. Children are given the opportunity to practise science skills and enhance their presentation using carefully chosen software.

In both key stages children have the opportunity to:

Locate and research information using the internet.

Record findings using text, data, and tables.

Log changes to the environment over time using sensing equipment and data loggers.

Use digital cameras, tape recorders and microscopes.

Explore a variety of activities and resources using the IWB (Interactive Whiteboard).

Cross Curricular Links

At Hilltop, children have the opportunity to develop their writing and maths skills in a variety of challenging and stimulating activities. The curriculum gives children the chance to use their key skills such as collaboration, perseverance, and their natural curiosity to be successful scientists and develop understanding of scientific processes.

Outdoor Learning

At Hilltop, we aim to enhance our Science curriculum and learning through the use of and exploration of our extensive outdoor environment. The outdoor classroom provides an opportunity to learn in a natural environment and will promote eco-awareness throughout the school. Learning that takes place outside the classroom can improve pupils' teamwork, motivation and enthusiasm for Science. We provide a safe, stimulating outdoor environment where space is used effectively to enable children to explore a challenging and engaging curriculum. Teachers use a range of interesting resources suitable to each child's individual needs.

Assessment of Science

Assessment for learning is continuous throughout the planning, teaching and learning cycle. Assessment is carried out in a variety of ways:

Observing when children are learning, individually, in pairs, in a group, and in classes.

Questioning, talking, and listening to children.

Considering work/materials / investigations produced by children together with discussion about this with them.

Observations and assessments are recorded by class teachers in Early Years within the children's individual pupil profiles. Pupils are assessed against age bands as described in the Development Matters non-statutory guidance.

Evidence of learning is presented in children's books and class/school displays.

Teachers will assess each child against the learning objectives from the National Curriculum for their year group within each unit of learning taught. Children should be assessed as either working towards or at the expected standard. At the end of the academic year

teachers must report if children are working at or towards the expected standard across the whole of the Science curriculum.

Assessment for Learning

We regularly use assessment to inform and develop our teaching.

Topics develop from children's current level of scientific knowledge and skill. Some teachers will use mind maps which can be added to during the unit to show a child's progression in knowledge.

Children are involved in the process of self-improvement, recognising their achievements, and acknowledging where they could improve. Activities during, and at the end of, each topic record achievement and celebrate success.

We mark each piece of work positively, making it clear verbally, or on paper, where the work is good, and how it could be further improved. For further information see our marking policy.

Written reports are given once a year, describing each child's attitude to science, his/her progress in scientific enquiry and understanding of the content of science.

Resources

We encourage the use of our wide range of equipment and the outdoor environment to further promote curiosity and embed scientific understanding. Resources are stored in the science cupboard which all members of staff have access to. It is everyone's responsibility to look after the Science resources and any damaged equipment should be reported to the Science Leader. It is the Subject Leader's responsibility to monitor the quality and quantity of all resources and purchase or replenish resources when necessary.

Health and Safety

Any risks associated with a scientific activity should be identified and minimised through careful planning. Teachers refer to the Health and Safety Policy for extra guidance.

Role of the Science Leader

The role of the Science Leader is to:

Inspire others to teach science in a practical, engaging and challenging way.

Monitor the effectiveness of Science within the school.

Support teachers in their planning and strategies for classroom management.

Encourage the use of scientific vocabulary across the school.

Keep up to date with any new, relevant government documents and disseminate new information.

Ensure continuity and improvement of the teaching and learning of science across the school by monitoring and professional development opportunities.

Ensure that the Science assessment across the school is consistent, accurate and to judge whether data is in line with national averages.

Statement of Equality

We have carefully considered and analysed the impact of this policy on equality and the possible implications for pupils with protected characteristics, as part of our commitment to meet the Public Sector Equality Duty (PSED) requirement to have due regard to the need to eliminate discrimination, advance equality of opportunity and foster good relations.

Equality Impact Assessment

Who is the policy or process intended for?	Pupils	Employees	Govs/ Trustees	Volunteers	Visitors
	☑	☑	☑	☑	☑

Status of the policy or process:	New policy or process	Existing policy or process
	☐	☑

Analysis				
Protected Characteristic	Impact analysis			Explanation of impact analysis
	Positive	Neutral	Negative	
Age:	☐	☑	☐	
Disability:	☐	☑	☐	
Sex:	☐	☑	☐	
Gender reassignment:	☐	☑	☐	
Race:	☐	☑	☐	
Religion or belief:	☐	☑	☐	
Sexual orientation:	☐	☑	☐	
Marriage or civil partnership:	☐	☑	☐	
Pregnancy and maternity:	☐	☑	☐	
Pupil groups (PP/SEN/CLA):	☐	☑	☐	

Evaluation and decision making	
Summary of action taken:	
Final decision:	