

BUCKINGHAMSHIRE COUNCIL



Thomas Hickman School

Science Policy

Adopted by Thomas Hickman School

This policy was adopted by Chair of Governors :

Adopted by Governors Full GB:

Governing committee accountable for review Reviewed:

SLT member accountable for review:

science Leader

Date of last review:

May 2022

Date of next review:

May 2026

Signed:

Date:

Alan Sherwell - Chair of Governors

Our Vision

Science is a valuable means of systematically finding out about ourselves and the environment in which we live.

Our Flying Start curriculum enables staff to deliver Science learning as an integral part of their 'Field of Study'(FoS) or as discrete lessons.

Scientific **enquiry** promotes children's curiosity and enables them to apply scientific understanding and skills from across the curriculum.

Scientific **understanding** allows pupils to use and apply key concepts from other parts of the curriculum in a range of contexts. Science provides children with the opportunity to extend their natural curiosity and wonder about the world in which they are growing.

"Science Talk" sessions enable children to develop their scientific vocabulary and apply their knowledge and understanding. They could be analysing an image, discussing a question or unpicking a theory.

Our science curriculum provides pupils with an understanding of both **substantive and disciplinary knowledge**.

Substantive knowledge- is the subject knowledge and explicit vocabulary used to learn about the content.

Disciplinary knowledge- this considers how scientific knowledge originates and is revised. It is through disciplinary knowledge that children gradually become more expert by thinking like a scientist.

Substantive Knowledge: Concepts, models, laws and theories

Biology • Living things and their environment (Animals, humans, plants, habitats) • Reproduction, inheritance and evolution (Evolution, inheritance, life processes, life cycles)

Chemistry • States of matter (Solids, liquids, gases) • Materials (properties and changes including reversible/irreversible changes,)

Physics • Energy (Light, sound, electricity) • Forces (Friction, air resistance, gravity, magnets) Earth Science • Earth and space (Seasons, day and night, solar system and beyond) • Rocks and fossils

Disciplinary knowledge: Working scientifically

Disciplinary knowledge is taught and embedded within the teaching of each unit of substantive knowledge.

- **Methods used to answer questions** (use of models, classification, correlations and patterns, experimentation, fair testing)
- **Using apparatus and techniques** (accurate measurement, collecting and recording data, carrying out procedures safely and accurately)
- **Data analysis** (processing and presenting data, exploring relationships, communicating results in tables / graphs, identifying correlations)
- **Using evidence to develop explanations** (using evidence / scientific knowledge to draw conclusions, explain laws, models, concepts and findings)

Aims

We aim to...

- Provide a range of **inclusive** learning experiences that match the needs of the pupils at all stages.
- Provide opportunities for pupils to explore ideas and concepts in a range of environments.
- Show where science is carried out day by day and the range of people involved.
- Provide opportunities for pupils to communicate scientifically.
- Initiate a lifelong interest in the natural world.
- Develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life.
- Build on pupils' curiosity and sense of awe of the natural world.

- Use a range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science, and be involved in developing their own investigations to answer their own questions.
- Introduce pupils to the language and vocabulary of science.
- Cultivate an understanding of Fair Testing and consistency in science investigations
- Develop pupils' basic practical skills and their ability to make accurate and appropriate measurements.
- Extend the learning environment for our pupils via our environmental areas and the locality.
- Promote a 'healthy lifestyle' in our pupils.
- Enable all pupils to access science lessons by removing barriers to learning and enabling all pupils to shine.

Continuity and Progression

Our Flying Start Curriculum provides teachers with building blocks to develop powerful science learning experiences for all children.

Staff also use Explorify to enhance learning and to ensure coverage of all objectives from the National Curriculum. Our science is planned through the scheme, Pzaz Science and when possibly linked to the current FoS. However, this isn't the imperative: coverage of skills and knowledge is the driver, thus science can also be planned in as discrete lessons.

Science will be planned to give pupils a suitable range of differentiated activities appropriate to their age and abilities. Tasks will be set which challenge all pupils, including the more able. For pupils with SEN, the task will be adjusted or pupils may be given extra support. The grouping of pupils for practical activities will take account of their strengths and weaknesses and ensure that all take an active part in the task and gain in confidence.

Foundation Stage pupils investigate science as part of Understanding of the World. Children are encouraged to investigate through practical experience; teachers guide the children and plan opportunities that allow the children to experience and learn whilst experimenting for themselves. By careful planning, pupils' scientific skills and knowledge gained at Key Stage 1 will be consolidated and developed during Key Stage 2.

Pupils in Key Stage 1 will be introduced to science through focused observations and explorations of the world around them. These will be further developed through supportive investigations into more independent work at Key Stage 2. The knowledge and content prescribed in the National Curriculum will be introduced throughout both key stages in a progressive and coherent way.

This is monitored by leaders to ensure children are getting quality science teaching that covers all necessary learning experiences.

Cross-curricular skills and links

Science pervades every aspect of our lives and we will relate it to all areas of the curriculum. We will also ensure that pupils realise the positive contribution of both men and women to science and the contribution from those of other cultures. We will not only emphasise the positive effects of science on the world but also include problems, which some human activities can produce. Our 'Flying Star Curriculum' provides the foundations on which this can be built.

Equality of Opportunity

All children have equal access to the science curriculum and its associated practical activities. The SLT, Class Teachers and TAs at Thomas Hickman Primary School are responsible for ensuring that all children, irrespective of gender, learning ability, physical disability, ethnicity and social circumstances, have access to the whole curriculum and make the greatest possible progress. Where appropriate, work will be adapted to meet pupils' needs and, if appropriate, extra support given. More able pupils will be given suitably challenging activities. Gender and cultural differences will be reflected positively in the teaching materials used.

All children have equal access to our inclusive science curriculum, its teaching and learning, throughout any one year. This is being monitored by analysing pupil performance throughout the school to ensure that there is no disparity between groups.

Health and safety

Pupils will be taught to use scientific equipment safely when using it during practical activities. Class Teachers and Teaching Assistants will check equipment regularly and report any damage, taking defective equipment out of action. A simple risk assessment will be carried out for all practical activities any perceived hazards will be reported to the Head who will determine the appropriateness of said activity.

Assessment for Learning, recording and reporting

Throughout the school teachers will assess whether children are working at/above or below the expected level for their age based on their understanding and application of the content of the National Curriculum 2014. As a school we use our Assessment and Feedback books to record AfL and ,Insight tracker analyse attainment and progression.

Day to day science work is assessed in accordance with our assessment policy.