



Policy for Science

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Provision

At Thornhill we recognise that every pupil is unique and brings to school a diverse range of knowledge and experiences. We will support, encourage and challenge our pupils to develop their potential and individuality in an environment which is stimulating and exciting and rich in opportunities.

Aims and Objectives

- To develop pupil's scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- To develop pupils understanding of the nature, processes and methods of science through different types of science enquiries that helps them to ask and answer scientific questions about the world around them.
- To ensure that pupils are equipped with a scientific knowledge required to understand the uses and implications of science today and for the future.

(National Curriculum 2014)

- To develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life.
- To build on pupils' curiosity and sense of awe of the natural world.
- To introduce pupils to the language and vocabulary of science.
- To develop pupils' basic practical skills and their ability to make accurate and appropriate measurements
- To extend the learning environment for our pupils via our environmental areas (pond, wildlife area) and the locality.
- To promote a 'healthy lifestyle' in our pupils.

SMSC Statement

Spiritual, moral, social and cultural development is promoted not only through all the subjects of the curriculum but also through the ethos of the school, through the development of positive attitudes and values and planned time for reflection. This policy supports and reinforces the aims of Thornhill Primary School, valuing all pupils and staff equally and as individuals. At Thornhill, science contributes to pupils' SMSC development through:

Spiritual Education

Through a variety of practical and enquiring processes within science pupils are encouraged to reflect on the wonder of the natural world. They are encouraged to ask questions about how living things rely on and contribute to their environment. This promotes openness and confidence to voice

an opinion. Through science, pupils are achieving a sense of enjoyment and fascination about themselves, others and the world around them.

Moral Education

Moral education involves pupils having awareness of the ways that science and technology can affect society and the environment. Pupils develop an interest in investigating and offering reasoned views about moral issues. Pupils are given the chance to consider the wonder of the natural world and the inventions, which have made the world a better place. Teaching allows opportunities for pupils to speculate about how science has both a positive and sometimes a negative result on their own environment.

Social Education

Social education involves pupils working within a group, listening and respecting the views of others. Pupils need to work cooperatively within practical activities and they show respect for differing opinions. Through learning about our environment, pupils will be exploring the social dimension of scientific advances and energy processes and will be able to reflect upon their impact.

Cultural Education

Cultural education in Science means pupils may have the opportunity to learn about the ways in which scientific discoveries from around the world have affected their own lives. This will raise awareness that scientific developments are the product of many different cultures.

Teaching and Learning

Staff at Thornhill Primary School use a variety of teaching and learning styles in Science lessons. Our principal aim is to develop pupil's knowledge, skills and understanding. We do this through a mixture of whole-class teaching and individual / group activities. Staff encourage pupils to ask as well as answer scientific questions. They have the opportunity to use a variety of secondary sources of information, which enhance learning as well as gaining first hand experiences, for example, the use of books, photographs, graphs, diagrams, models and ICT.

They present their knowledge and understanding in a variety of ways:

- Practical investigations and experiments to develop scientific enquiry skills.
- Fieldwork and visits are a purposeful and integral part of the curriculum.
- Visits and visitors who help to make learning come alive
- Outdoor learning and the opportunity for out of school experiences is valued and integral to teaching.

Through the teaching of science we can also:

- Improve pupils' skills in literacy, numeracy and ICT
- Develop pupils' thinking skills
- Promote pupils' awareness and understanding of gender, cultural, spiritual and moral issues
- Develop pupils as active citizens

When teaching science we:

- Always explain what we want pupils to know, understand and be able to do
- Use key questions to direct pupils' thinking / enquiry
- Vary resources and activities to ensure each pupil can learn effectively
- Cater for all learning styles and abilities through effective differentiation
- Ensure displays are rich and vibrant and purposeful to learning and celebrate the achievements of all pupils
- Enable the opportunity for pupils to extend their learning through the setting of home work projects and tasks.

Science Across the School

Foundation Stage

Science is taught as an integral part of the topic work covered throughout the year. Scientific aspects of children's work are related to the objectives set out in the ELGs. Science is taught within the area of 'Understanding of the World'. Activities inspire the pupils to experiment and investigate the world around them. It helps them raise their own questions such as "Why...?" "How...?" and "What happens if...?"

Key Stages One and Two

Science is taught as part of the weekly timetable. The school follows the Snap Science (Collins) scheme and the National Curriculum Programme of Study. Over the course of a year, these are the units of work covered:

- **Year 1** – Everyday materials, animals (including humans), plants, seasonal changes.
- **Year 2** – Living things and their habits, plants, animals (including humans), uses of everyday materials.
- **Year 3** – Rock detectives, The power of forces, How does your garden grow? Our changing world, Amazing bodies, Can you see me?
- **Year 4** – States of matter, Switched on, Where does all that food go? Good vibrations, Our changing world, Human impact.
- **Year 5** – Our changing world, Circle of life, Reproduction in plants and animals, Get sorted, everyday materials, Marvellous mixtures, Feel the force, The earth and beyond.
- **Year 6** – Light up your world, The nature library, Danger! Low voltage, Our changing world, Everything changes, Body pump Body health.

Equal Opportunities

- In line with our Equal Opportunities Policy we are committed to providing a teaching environment which is conducive to learning. Each child is valued, respected and challenged regardless of race, gender, religion, social background, culture or ability.
- All pupils will have an equality of access to a broad and balanced curriculum irrespective of gender, ethnicity, or special educational needs.
- We recognise that we have pupils of differing ability in all our classes and so we provide the learning opportunities for all pupils by matching the challenge of the task to the ability of the pupil. We achieve this through a range of strategies:
 - Setting common tasks that are open ended and can have a variety of responses;
 - Grouping pupils by ability and setting different tasks for each group;
 - Providing a range of challenges with different resources;
 - Using additional adults to support the work of individual children or small groups.

Resources

- We have a range of resources to support the teaching of Science across the Key Stages including artefacts, scientific equipment, DVDs, website subscriptions, photographs and ICT hardware. Consumable resources may be ordered when needed.
- These are mostly stored in the main resources room and within classrooms.
- In addition, topic boxes may be borrowed from the Schools Library Service.

Assessment and Record Keeping

To assess pupils' progress in Science we:

- Gather evidence of what individual pupils know, understand and can do by observing them at work, listening to and discussing with them, and evaluating any work they produce.
- We use learning questions which we assess against which then allow us to track progress in and between lessons.
- At the end of each unit, we record attainment against the National Curriculum objectives and input this into Target Tracker.
- We make an assessment of attainment against the National Curriculum expectation for each pupil and comment on particular strengths and successes as part of the pupil's annual report to parents.
- Marking in Science follows the school marking policy.

Monitoring and Evaluation

- The monitoring of the standards of pupil's work is the responsibility of curriculum and Senior Leaders. This is carried out through monitoring of teacher's medium term planning, scrutinising pupil's work, talking to pupils, reviewing and evaluation of termly topic evidence and scrutiny and monitoring of displays around the school. Annual evaluations identify the strengths and weaknesses of Science and indicate areas for development. These are recorded in the Science action plan.

E. Nolan/L. Phillips: 2018