

Science Policy



DANE ROYD SCHOOL

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Miss L Mortimer

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Aims which guide our policies and practice

As a school, we seek to promote shared moral and ethical values to unite both local and global interests which enable children to become global citizens. Our agreed school aims are:

- To create a happy and stimulating learning environment, in which each child will develop to their full potential, thereby achieving high educational standards.*
- To develop self-awareness, self-respect and tolerance of others by developing an understanding of the world in which they live.*
- To appreciate human achievements and aspirations; develop aesthetic sensitivity and appreciation; physical ability and co-ordination and a concern for the safety of themselves and others.*
- To prepare children to live and work with others, enabling them to be responsible and caring members of the community.*
- To give children, at the end of their period of primary education, an appetite for acquiring further knowledge, experience and skills, so ensuring they are prepared for the challenges of the next stage in their education.*

We ensure that all of our policies and practices are guided by these aims and we seek to ensure that they are at the forefront of all that we do.

Science Policy

Introduction

This document is a statement of the aims, principles and strategies for the teaching and learning of Science at Dane Royd Junior & Infant School. This policy is reviewed periodically according to the School Development Plan and is reflective of the New Curriculum which was introduced in 2014.

The New Curriculum (2014)

The science curriculum at Dane Royd Junior and Infant School is based on the new National Curriculum of science. This ensures a balanced coverage and progression throughout the school.

The new National Curriculum: Programmes of study for Key Stages 1 and 2 aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop 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
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

The Early Learning Goals surrounding the World, Technology, Exploring and using Media and Materials addresses Science in the Foundation Stage.

Purpose:

The purpose of this policy is to describe our practice in primary science and the principles upon which this is based.

Aim(s):

Our aims in teaching science are that all children will:

- have equal access to the whole curriculum regardless of ability, gender, race or religion
- retain and develop their natural sense of curiosity about the world around them
- develop a set of attitudes which will promote scientific ways of thinking, including open-mindedness, perseverance, objectivity and a recognition of the importance of teamwork
- come to understand the nature of “scientific method” involving:
 - ~ meticulous observation, the making and testing of hypotheses,
 - ~ the design of fair and controlled experiments,
 - ~ the drawing of meaningful conclusions through critical reasoning and the evaluation of evidence
- become effective communicators of scientific ideas, facts and data
- begin to build up a body of scientific knowledge and understanding which will serve as a foundation for future enquiry.

Wider school aims/ethos:

This policy supports our school aim of 'developing an understanding of the world in which we live'.

Consultation:

This policy was written by Charlotte Rigby and Laura Mortimer, subject co-ordinators of science.

Sources and references:

The national curriculum for science: Key Stages 1 and 2 - Department for Education

Procedures and practice**1. Steps****2. Roles and responsibilities**

The role of the science co-ordinator is to:-

- take the lead in policy development and ensure planning throughout school shows progression and continuity in Science.
- support colleagues in the implementation of their Science work/plans
- take responsibility for the purchase and organisation of central resources for Science
- keep up-to-date with developments in science education through courses and literature and share information to colleagues as appropriate
- monitor and evaluate the progress of pupils throughout school and in effect teaching and learning

3. Aspects**Definition:****What is Science?**

Science is a body of knowledge about the natural and physical world based on processes that lead to the drawing of conclusions.

Health and safety:

CONSIDERATION OF HEALTH AND SAFETY ISSUES IS OF THE UTMOST IMPORTANCE IN SCIENCE.

See school Health and Safety Document.

Science poses a number of potential dangers in and around school due to its practical nature. It must be stressed that these dangers are minimal if proper precautions are taken. The most important factor is the children's own awareness and attitudes to working with scientific equipment. They should be aware of any rules that are in place and the reasons for them. The teacher should not compromise with safety standards and the children should be aware of the consequences of ignoring safety rules.

Below are some safety points, which are considered.

- Only use glassware as a last resort. Use plastic or metal alternatives if possible.
- Heating things should be done under close supervision.
- When candles or night-lights are used, they should be embedded in a sand tray. A bucket of dry sand should be kept nearby in case of emergency.
- All substances are kept in clearly marked containers with secure lids.
- Careful consideration is paid to keeping plants, insects and animals in school.
Children are taught to handle them properly, carefully and with respect.
Staff are aware that some children may be allergic to parts of plants, insects and animals. Children wash their hands before and after handling them.
- Children only use mains electricity under close supervision.
They are regularly warned about the dangers of using mains electricity.
- Appropriate handling and storage of equipment and materials is emphasised at all stages.

The school is very privileged to have their own garden and outdoor educational learning area. This provides a useful and beneficial resource for the teaching and learning of science. However, there are also many health and safety risks that should be taken into account before and during the use of the garden and outdoor area. The types of plants, flowers, edible berries and growing fungi must be monitored and observed in order to avoid allergies or poisoning. There must be careful consideration of the garden pond, with supervision of children at all times due to the dangers of falling in the water or drowning. Staff should evaluate the area and potential hazards before allowing children to use the garden and all children must be aware of the clear rules and safety instructions that must be adhered to and followed at all times when in the garden and outdoor area. Please also refer to the health and safety risk assessment of the garden for more detailed information.

Planning:

Planning in Science is a process in which all teachers are involved, wherein:-

- the foundation for curricular planning is the New Curriculum, developed through a process of collaboration between staff, and approved by governors
- a cycle of topic plans is drawn up by staff working groups and is carefully balanced to ensure full coverage of the New Curriculum
- staff meetings are used to discuss the science curriculum and ensure consistency of approach and of standards
- Science planning is carried out in key stage clusters (KS1, lower KS2, upper KS2) for each half term and are monitored by the senior management team and the Science co-ordinators

It is expected that each year group will write a long term plan for science, showing the topics and national curriculum areas covered throughout the year. Medium term plans are also required each half term, detailing the learning objectives achieved and national curriculum programmes of study. The science planning for all year groups across the school will be planned on the school's planning format. The class teachers from each year group cluster are responsible for the planning of science.

Teaching:

The predominant modes of working in Science are co-operative group work, individual work and class teaching as appropriate.

The emphasis in our teaching of science is on first-hand experience and we encourage children increasingly to take control of their own learning. Our focus is on 'scientific knowledge and conceptual understanding' as stated by The New National Curriculum (2014).

We aim to:

- study Science through practical investigative work.
- develop careful observation
- ensure resources are made readily available and accessible
- ensure pupils are encouraged to communicate their scientific findings to others using a variety of methods including written or verbal reports and use of graphs, pictures and computing
- assess children in line with the New National Curriculum
- make Science cross-curricular (only where possible)
- demonstrate the link between Science and everyday life.

Organisation:

Across the school, for both Key Stage 1 and Key Stage 2, it is expected that science lessons are taught at least once a week. Whole school science events and science weeks will also take place throughout the academic year which children will be actively involved in.

Homework/parent partnership:

Each year group will set age and ability related homework where appropriate, linking to the current science topic studied.

Reporting to parents is done through parent consultation evenings biannually and through a written report annually.

Resources:

Central resources in science are the responsibility of the science coordinators.

They include:-

- Sets of scientific equipment to be used by all classes, such as pooters, magnets, spring balances, electrical equipment etc.
- Schools Library Services is used to support school resources with books, videos, posters and cassettes.

The libraries for KS1 and KS2 house a substantial stock of books on science and are used regularly for reference.

The school has a garden and outdoor educational learning area. This provides a useful and beneficial resource for the teaching and learning of science. The use of this facility is actively encouraged and class teachers should incorporate and utilise this outdoor area in science lessons as much as possible as it links well with numerous national curriculum objectives.

Assessment:

Feedback to pupils about their progress in science is achieved through:-

- discussion between children and teacher, usually while the task is being carried out
- encouraging children to think critically about what they have achieved
- effective marking of written work - this will vary according to age and ability

Formative assessment is used to guide the progress of individual pupils in science. It involves identifying each child's progress in each area of the science curriculum, determining what each child has learned and what therefore should be the next stage in his/her learning. Formative assessment is mostly carried out by teachers in the course of their teaching. Suitable tasks for assessment include

- small group discussions usually in the context of a practical task
- specific assignments for individual pupils

Formal summative assessment is carried out at the end of each academic year and at the end of each National Curriculum Key Stage (ie. Years 2 and 6) through the use of teacher assessment.

Monitoring and evaluation:

The recording of progress in Science is monitored using the School's online tracking system (currently Target Tracker). Reporting in science will focus on each child's:-

- positive attitudes to Science
- progress in scientific enquiry, the ability to investigate scientifically including understanding of the nature of "scientific method"
- body of scientific knowledge

Science will be monitored throughout school through:

- Learning walks
- Book scrutiny
- Observations
- Pupil voice

Concluding notes

Monitoring and review:

The subject leader with responsibility for science is primarily responsible for monitoring the implementation of this policy. This will be through consideration of the evidence included in the subject leader portfolio. The subject leader will report on this to the standards committee annually. The work of the subject leaders will also be subject to review by the head teacher as part of our performance management arrangements.

Other documents and appendices:

The science policy should be read in conjunction with our policies for curriculum, learning and assessment, and along with the school's health and safety guidance and policy.