

Wellgate Primary School

Science Policy

Introduction

This policy is a statement of the aims, principles and strategies for the teaching and learning of science at Wellgate Primary School. Science promotes an awareness of the world around us, helping us to make sense of the world and contributes to children's knowledge and understanding of a highly technical and rapidly changing world. At Wellgate, we believe it is part of our responsibility to prepare our children to live in that world.

Aims

At Wellgate Primary School we believe that the teaching of science should;

- Help children to enjoy scientific activities and to foster a positive approach to science
- Build on their natural curiosity through systematic enquiry
- Increase their scientific knowledge and understanding
- Encourage skills to aid scientific enquiry such as observing, predicting, questioning, making inferences, concluding and evaluating, using mathematical skills and communicating ideas
- Be taught through first hand experience and scientific enquiry wherever possible

Planning

From Year One onwards, science is initially planned from the QCA schemes of work for Science. These plans are delivered through half termly topics, either in discrete units or with a cross-curricular approach. Wherever possible, ICT is used to enhance the science curriculum.

The foundation stage staff refer to the Curriculum Guidance for the Foundation Stage to inform their planning and teaching of science. They follow the Stepping Stones leading to Early Learning Goals in Knowledge and Understanding of the World. When appropriate, teachers ensure access to the learning outcomes from the National Curriculum to ensure high expectations in scientific skills.

Teachers plan for science in year groups and regularly review their planning in light of assessments made about children's development as topics develop. Copies of planning are collected by the headteacher.

Scientific Investigation

The essence of all our science teaching is scientific investigation. Our long term science plan incorporates the different types of scientific investigation to ensure appropriate coverage and skill development. We value scientific investigation for the following reasons:

- Children discover for themselves
- They learn to ask questions about the world around them
- Planning skills are developed
- Observation skills are developed
- Measuring abilities are improved
- There are opportunities to present to others
- Children develop explanation skills
- They learn how to interpret and evaluate

We develop the children's scientific investigative skills in a number of ways. We have planned the development of these skills to build on the children's previous experience and learning as follows:

F1	<ul style="list-style-type: none"> • Teacher decides questions and plans task • Children predict verbally • Children discuss their observations and describe what happened • Children record as drawings
F2	<ul style="list-style-type: none"> • Teacher decides questions and plans task • Children predict verbally • Teacher discusses a fair test • Children use simple observations and measurements eg:length (non-standard measures) • Children record as drawings, whole class graphs, visual representations and in simple written statements • Children orally describe what happened • Children describe patterns
Year One	<ul style="list-style-type: none"> • Teacher decides questions and plans task with child input • Teacher makes it a fair test • Children verbally predict • Children record observations with pictures, labels and in tables and in writing • Children use simple observations and measurements eg:length (non-standard and standard measures) • Orally describe what happens, explain results and suggest improvements
Year Two	<ul style="list-style-type: none"> • Teacher decides questions and plans task with children's help • Children are supported to design a fair test to control factors • Children record predictions • Children record observations with pictures, labels and in charts, graphs and tables and in writing • Children use simple observations and measurements eg:length (standard measures) • Children use more difficult measurements with teacher's help (eg:temperature, volume) • Describe what happens, explain results and suggest improvements with support from teacher

Year Three	<ul style="list-style-type: none"> • Teacher decides questions in consultation with children and jointly plans task with children • Children are supported to use their ideas for making it a fair test by teacher • Children predict in written format • Use simple observations eg length • Children use more difficult measurements eg temperature, volume • Record as drawings, tables, graphs, charts and in written work • Describe what happened verbally and in writing • Describe what happens, explain results and suggest improvements at a basic level
Year Four	<ul style="list-style-type: none"> • Teacher decides questions in consultation with children and jointly plans task with children leading to children deciding question and planning own task • Teacher supports children in making it a fair test leading to children designing a fair test to control factors • Children predict in written format • Use more difficult measurements eg temperature, volume • Record as drawings, tables, graphs, charts and in written work • Describe what happened in written form after discussion • Explain results and suggest improvements
Year Five	<ul style="list-style-type: none"> • Children decide question and plan own task with support from teacher as needed • Children design a fair test to control factors • Use more difficult measurements eg temperature, volume • Children predict in written format with reasoned arguments for those predictions • Record as drawings, tables, graphs, charts and in written work • Describe what happened in written form • Explain results and suggest improvements
Year Six	<ul style="list-style-type: none"> • Children decide question and plan own task • Children design a fair test to control factors • Use more difficult measurements eg temperature, volume • Record as tables, graphs, charts and in written work • Children predict in written format with reasoned arguments for those predictions • Describe what happens, explain results and suggest improvements

These approaches are for guidance only. Teachers make amendments and alterations as necessary to meet the needs of the children we teach, considering both prior and subsequent year group approaches.

As practical work is the basis of our scientific enquiry, we believe it to be most effective when:

- It is well planned and well structured
- Children are asked what they would like to find out
- A clear set of safety rules are in place
- High quality appropriate resources are available
- It is relevant to real life
- Teacher knowledge is good
- Teacher discusses with children while they are investigating
- Children are allowed to make mistakes and are confident to have a go
- Children are given a choice in how to approach an investigation
- Different ways of working are utilised eg: individual work, pairs, small group, whole class, mixed ability, ability groupings

Cross curricular Approaches

We believe that important cross curricular links can be made through the teaching of science.

We recognise that the key cross curricular skills in science are:

- Communication, through finding out about and communicating facts, ideas and opinions in a variety of contexts
- Application of numbers, through collecting, considering and analysing first and second hand data
- ICT capability through using a range of ICT tools
- Working with others, through carrying out scientific investigation
- Improving own learning and performance, through reflecting on what they have done and evaluating what they have achieved
- Problem solving, through finding ways to answer scientific questions with creative solutions

We also understand the possibilities of promoting pupils' spiritual, moral, cultural and social development through science

Inclusion

At Wellgate Primary School all pupils have equal access to the curriculum and where necessary and appropriate, tasks are modified or adapted to suit the individual child's needs or the needs of the group.

We regard the achievement of every group of pupils to be of equal importance. This is reflected in the curriculum we teach. We value and reward the achievements of all pupils equally. We have high expectations of behaviour for every group in school. We aim to involve parents from every background and believe this is a significant benefit to the school.

Resources

A wide range of science resources are currently stored in a number of areas around school. These areas include the science co-ordinator's classroom, the shower block and the area near the ICT suite. Please see the science co-ordinator for further details.

Health and Safety

The safe use of equipment is promoted at all times and the school's health and safety policy should be consulted where necessary.

When working with tools, equipment and materials in practical activities and different environments, pupils should be taught:

- About hazards, risks and risk control
- To recognise hazards, assess consequent risks and take steps to control the risks to themselves and others
- To use information to assess the immediate and cumulative risks
- To manage their environment to ensure the health and safety of themselves and others
- To explain the steps they take to control the risks

CLEAPPS offer consultation by letter or telephone for guidance about safety in primary science.

Teaching structure

In the foundation stage, children work towards the Early Learning Goals and through this they gain scientific experience appropriate to their age. Teaching is largely based on practical, first hand experience.

In Key Stage One, pupils spend an average of one hour and thirty minutes per week on science. In Key Stage Two pupils should spend an average of two hours per week on science. This time is flexible to accommodate the activities planned.

Science is taught mainly by the class teacher in mixed ability classes, adopting the most appropriate teaching and grouping for the task in hand and the needs of the children.

Children are also given opportunities to explore their own science skills, knowledge and understanding independently. They are encouraged to generate questions and to participate in their own spontaneous science activities and investigations.

Homework

Homework in science is given to consolidate skills and knowledge taught in class or it may be used to prepare for future lessons. Whatever the homework given, it should be carefully explained and feedback given to show the work is valued.

Assessment

Formative assessment is ongoing and is used to adapt teaching to meet the needs of all children during the individual units.

Summative assessment is carried out through the use of the Mini-Sats in Key Stage One and Two. These are given to the children at the end of each science unit. In the foundation stage, the children's progress is assessed against the Stepping Stones and Early Learning Goals.

Each term, teachers complete data sheets in science that measure the progress made from the beginning of the year starting point.

The science co-ordinator has a portfolio of children's work, which shows the expected levels in each year group throughout school.

Policy review

This policy will be reviewed on an bi-annual basis.

April 2008
Laura Cole
Science Co-ordinator