

## **Introduction**

This document is a statement of the aims, principals and strategies for teaching and learning of science at Lord Scudamore Primary School.

This policy will be reviewed annually.

## **A Definition of Primary Science**

Science represents a body of knowledge which is built up through experimental testing of ideas and which is organised in a way that makes it easy to use. It is also a methodology, a practical way of finding reliable answers to questions.

Science is essential to our understanding of ourselves and the world around us.

## **Aims:**

Our aims in teaching Science are that all children will:

- 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 perseverance, objectivity and a recognition of the importance of teamwork
- come to understand the nature of "scientific method" involving: careful observation, the making and testing of predictions, 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.
- find science enjoyable

## **Principles of the Teaching and Learning of Science**

Science is important because

- it is a body of knowledge essential to our understanding of ourselves and the world around us
- it provides an understanding of how scientific and technological change has impacted on the development of the world and the quality of our lives

- it encourages questioning and discussion skills as well as creative and imaginative thought
- the skills and knowledge of science can be applied throughout everyday life

### **Science in the National Curriculum**

Science is a core subject in the National Curriculum. The fundamental skills, knowledge and concepts of the subject are set out in "Science in the National Curriculum" where they are categorised into different attainment targets:

#### KS1

Working scientifically (Sc1) (This has a focus on hands on practical science, including the use of simple equipment to carry out basic experiments.)

Animals including humans

Plants

Living things and their habitats

Everyday materials

Uses of everyday materials

#### KS2

Working scientifically (Sc1) (This has a focus on hands on practical science, including the use of simple equipment to carry out basic experiments.)

Animals including humans

Plants

Living things and their habitats

Everyday materials

Uses of everyday materials

Electricity

Forces and magnets

Forces

Light

Sound

## Earth and Space

The Breadth of Study statements at the end of each Key Stage emphasise the importance of placing science into a familiar context and the need to use a range of sources of information. Pupils should also be taught to communicate their ideas and findings, and consider health and safety issues. These elements will be incorporated into teaching of the Attainment Targets.

### **Curriculum Planning**

The whole school ensures a broad balance of topics covered within each school year, as well as providing continuity and progression within and between each key stage.

Year	Autumn Term	Spring Term	Summer Term
1	Animals including humans (identify and group different types of animals, Name human body parts)	Plants (identify plants and describe basic structure) Everyday materials (identify materials and compare and group materials)	Seasonal Change (observe weather across 4 seasons)
2	Living things and their habitats. Plants (how seeds grow, establish that plants need water light etc.)	Animals including humans (basic needs, importance of exercise etc.)	Uses of everyday materials(identify and compare suitability of materials for different uses, compare how things move, find out how shapes can be altered)
3	Plants (identify and describe the functions of different parts of flowering plants, explore the part that flowers play in the life cycle of flowering plants.  Forces and magnets	Animals including humans. ( identify that animals need the right type and amount of nutrition, skeletons and muscles) Light	Rocks (compare and group different kinds of rocks, describe how fossils are formed, recognise that soils are made from organic matter)

4	All Living things (explore classification keys, recognise that environments can change) Electricity	States of matter Sound	Animals including humans (digestion, teeth and food chains)
5	Earth and Space (Describe the movement of the earth and other planets in relation to each other and the Sun, Use the idea of the Earth's rotation to explain day and night.)  Forces (Gravity, air resistance, water resistance and friction, recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect)	Living things and their habitats ( life cycles of mammal, amphibian, an insect and a bird, describe life processes and reproduction) Animals, including humans (describe the changes as humans develop to old age)	Properties and Changes in Materials (compare and group together everyday materials based on hardness, solubility, transparency etc., dissolving, separating materials, reversible and irreversible changes)
6	Animals including humans Evolution	Electricity Light	Living things and their habitats. SATS *

\* The Science Curriculum will be revised in Year 6 and each class will be taught the topics in rotation

All year groups will 'work scientifically' during these topics.

### **The Foundation Stage**

The Nursery and reception classes have adopted the Curriculum Guidelines for the Foundation Stage. This is assessed through the Knowledge and Understanding section of The Early Learning Goals.

### **Termly Planning**

- Science is taught throughout the year.
- Teachers who teach the same year group, plan and evaluate together.
- Teachers medium term planning takes into account the science activities and content that has been previously taught on that topic.

- Commercially available schemes of work are not used in Science as teachers prefer to plan their own programmes.
- Wherever possible, cross curricula links should be sought and implemented provided they add more to the teaching and learning of that topic.

### **Weekly Planning**

- Learning outcomes for both content and investigative work are identified.
- Planning takes into account the progress made by pupils in the previous lesson.
- ICT opportunities are incorporated into lesson plans where appropriate. e.g. Use of flipcharts, research websites, Espresso, Education City.

### **Strategies for the Teaching of Science**

Teaching strategies will vary and will be most appropriate to the planned learning outcomes of the lesson. A mixture of whole class, group and individual teaching will be used to deliver the Science curriculum.

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 Sc1 of the National Curriculum, Scientific Investigation, thus most study of science is through practical investigative work.

Within this structure:

- careful observation is fostered
- relevant discussion is encouraged
- pupils are encouraged to communicate their scientific findings using a variety of methods including written or verbal reports and use of graphs or pictures
- resources are made readily available and accessible

Excellence in science is celebrated in display and performance including

- the mounting of graphical display of the results of scientific enquiry
- communication of scientific findings during whole class lessons.

## **Differentiation**

In general, teachers plan a core activity for the majority of pupils, ensuring that all pupils are able to engage with the scientific content of the lesson. Support for the less able may be provided by the use of additional resources and teaching assistants where available. Extension and enrichment activities are provided for the more able in this subject.

(For more details on Special Educational Needs see SEN and Gifted and Talented Policies.)

## **ICT in Science Lessons**

A range of teaching methods are encouraged in order to incorporate ICT into the Science curriculum. This involves the use of:

- Science specific software for pupil use or demonstration.
- Activ Inspire flipcharts – to enhance teaching
- ICT to record scientific work such as investigations.
- Videos for research purposes.
- The internet.
- A datalogger and relevant software.
- Laptops in the class to aid research and help with recording and presenting findings to others.

## **Assessment of Science**

Feedback to pupils about their own progress in science is achieved through the marking of work.

- All work should be marked in relation to the main learning objectives for that task.
- Marking should relate to the science content of the work and comments should be developmental.
- Marking should also indicate grammatical and punctuation errors appropriate to the pupils' attainment.
  
- Teachers use Assessment for Learning and Success Criteria to help children acknowledge their achievements and to identify areas for improvement.

Formative and summative 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.

## **Reporting procedures**

Parents are informed of pupil progress in science during Parents' Evening and in the termly reports.

### **Equal Opportunities**

We aim to provide equal opportunities in science, ensuring equality of access to activities and resources.

### **Health and Safety in Science**

The school is committed to promoting the safe handling and care of living things, as well as ensuring safety during science activities. At Key Stage 1, the children are made aware of any potential risks to their safety. At Key Stage 2, the children are asked to consider safety issues for themselves and they are encouraged to take the necessary precautions.

### **Risk Assessment**

Risk assessments have been carried out by the Science Co-ordinator where activities have been deemed to have a potential risk.

Further risk assessments have been carried out by individual teachers when the need has arisen.

(See Risk Assessment file)

The school follows the Be Safe guidelines published by the Association for Science Education. A copy is kept with the science policy which is held centrally.

### **Resources**

The school continues to develop its science resources to meet the needs of the National Curriculum. Key stage 1 resources can be found in the Infant Department. Key Stage 2 resources can be found on the top corridor of the Junior Department. A comprehensive list of resources is held centrally and this is regularly updated.

During the Spring term, Year groups are asked to list the resources they require for the next academic year. The budget requirement is drawn up by the Science Co-ordinator and presented to the Senior Management Team.

The Science budget is allocated from the overall school budget. Further resources are purchased via the Friends and Superstore Vouchers if necessary.

### **The Role of the Science Co-ordinator**

The role of the science co-ordinator is to

- take the lead in policy development and the production of schemes of work designed to ensure progression and continuity in Science throughout the school
- support colleagues in their development of detailed work plans, their implementation of the scheme of work and in assessment and record keeping activities
- monitor progress in Science and advise the Head Teachers on action needed
- take responsibility for the purchase and organisation of central resources for Science
- keep up-to-date with developments in Science education and disseminate information to colleagues as appropriate

### **The school Improvement Plan**

A subject improvement plan has been drawn up for Science. The priorities include the development of:

- The Outdoor Classroom area and how it can be usefully incorporated into the teaching of our science curriculum.
- Use of Discovery Dog and Post It Planning as a means of teaching Sc1 throughout the whole school. Monitor its impact on teaching and learning.
- Identifying and strengthening cross curricular links to ensure science is meaningful and interactive.