Garlinge Primary School and Nursery

SCIENCE POLICY

INTRODUCTION

Science is the systematic investigation of the physical, chemical and biological aspects of the world that relies primarily on first hand experiences.

Science for our children means exploring, discovering and investigating the world around them, deepening and improving their understanding of concepts already held and challenging ideas put to them.

The main aspects of science to be studied at Garlinge Primary School and Nursery will be determined by the programmes of study of the Early Years Foundation Stage and the National Curriculum, as identified in the Programmes of Study in the science National Curriculum.

AIMS

- 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 use a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science
- 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 develop pupils' use of information and communication technology (ICT) in their science studies

LEARNING OUTCOMES

The following learning outcomes are derived from the aims above and will form the basis of our decisions when planning a scheme of work.

To develop a knowledge and understanding of science and its processes:

- To develop a knowledge and appreciation of the contribution made by famous scientists to our knowledge of the world including scientists from different cultures
- To encourage pupils to relate their scientific studies to applications and effects within the real world
- To develop knowledge of the science contained within the programmes of study of the National Curriculum

To build on pupils' curiosity and sense of awe of the natural world:

- To develop in pupils a general sense of enquiry which encourages them to question and make suggestions
- To encourage pupils to predict the likely outcome of their investigations and practical activities

To use a planned range of investigations and practical activities to give pupils a greater understanding of scientific facts and concepts:

- To provide pupils with a range of specific investigations and practical work that gives them a worth-while experience to develop their understanding of science
- To develop progressively pupils' ability to plan, carry out and evaluate simple scientific investigations and to appreciate the meaning of a 'fair test'

To develop the ability to record results in an appropriate manner including the use of diagrams, graphs, tables and charts:

- To introduce pupils to the language and vocabulary of science
- To give pupils regular opportunities to use the scientific terms necessary to communicate ideas about science
- To develop pupils' basic practical skills and their ability to make accurate and appropriate measurements and choose and use correctly the appropriate equipment for a scientific task.
- Within practical activities give pupils opportunities to use a range of simple scientific measuring instruments such as thermometers and force-meters and develop their skill in being able to read them

PLANNING AND TEACHING

In Foundation Stage medium-term planning is based on the Early Years Foundation Stage Curriculum's Understanding of the World. The children will be supported in developing the knowledge, skills and understanding that help them to make sense of the world. Their learning will be supported through offering opportunities for them to use a range of tools safely; encounter creatures, people, plants and objects in their natural environments and in real-life situations; undertake practical experiments and work with a range of materials. Further information can be obtained in the Early Years Foundation Stage Policy.

In Key Stage 1 and 2 medium-term planning is based on the Kent Scheme of Work written by Andrew Berry. Teachers are required to use the unit plans available to them from the scheme and annotate and adapt where suitable to meet the learning needs of the children within their class. Science is timetabled in Key Stage 1 for at least 1.5 hours per week and at least 2 hours per week for Key Stage 2. To ensure continuity and progression, when planning, staff refer to:

- The Andrew Berry Scheme of Work for Science
- Previous pupil records and any assessment undertaken showing prior attainment
- The National Curriculum
- Key Stage Plan
- Progression of Knowledge and Skills Document

Scientific enquiry (working scientifically) is an important part of each topic and as such is planned for within the contexts of the other areas taught within the curriculum. This encompasses both practical investigations and the use of secondary evidence.

All Programmes of Study from the National Curriculum are to be covered in each key stage following the school plan and cycle in line with the Curriculum. The statutory sections are all completed and will be complemented with the non-statutory guidance accordingly.

Differentiation and Additional Educational Needs (AEN):

The study of 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 AEN the task will be adapted, 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 pupils take an active part in the task and gain confidence.

Pupils with specific learning difficulties or physical disabilities will be provided with an adapted programme, resources and equipment suited to their needs when necessary. Teachers should refer to pupils' EHCP or consult with the SENCo and Science Subject Leader if they require extra support with pupils with specific educational needs.

Breadth & Balance:

Pupils will be involved in a variety of structured activities and in more open ended investigative work:

- activities to develop good observational skills;
- practical activities using measuring instruments which develop pupils' ability to read scales accurately;
- structured activities to develop understanding of a scientific concept;
- open-ended investigations to allow children to apply what they have learnt and develop their thinking skills.

Relevance:

Wherever possible, science work will be related to the real world and everyday examples will be used. Teachers will also try to link their science topic with the other curriculum topic areas where possible.

CROSS-CURRICULAR LINKS

Science is included in all aspects of our lives and provides many good opportunities for links with all other subject areas. Teachers will take every opportunity to develop cross-curricular links whilst maintaining the science as the essential vehicle for learning. One day per term will be focussed on global environmental issues that are notable and key to children's future lives; addressing areas of importance such as climate change, plastic pollution or wildfires. This lesson content could be delivered not only through a science lesson, but also as part of a reading lesson, or PSHE for example. Educational visits and learning outside the classroom are an integral part of life at Garlinge Primary School and Nursery, furthering the education of the pupils. Educational visits and learning experiences outside the classroom are arranged for pupils at Garlinge Primary School and Nursery when pertinent to the Learning Intention of the lesson.

EQUAL OPPORTUNITIES

Every child regardless of age, sex or race will have equal opportunities to access the full curriculum for Science achieved through adapting the content. Curriculum planning will ensure that all pupils have an equal opportunity to take part in the full scheme of work and its associated practical activities. 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. Where English is not a pupil's first language, teachers will need to ensure scientific vocabulary is pre-taught prior to each new topic.

HEALTH AND SAFETY

The safe use of equipment is taught and emphasised at all times, as is the importance of hygiene. (Please refer to the school's Health and Safety Policy)

Pupils should be specifically taught to look for potential dangers and plan ways to prevent accidents occurring. A simple risk assessment will be carried out for all practical activities.

Copies of the ASE book 'Be Safe' are held by the Science Subject Leader and with the science resources and this can be used as a guide to make simple risk assessments and should be consulted when necessary.

If an activity is not covered by 'Be Safe' then teachers will contact CLEAPSS (School Science Service Helpline 01895 251496 or science@cleapss.org.uk) for further advice before undertaking an activity.

ASSESSMENT AND RECORD KEEPING

Science assessment and record keeping is a continuous process which aids planning and teaching to ensure continuity and progression in the learning of all pupils.

Each Lesson teachers use observation of pupils at work, questioning and marking according to the stated learning intentions to inform the following lessons' planning which is adjusted according to areas of strength and weakness in pupil understanding. Assessments will be noted down on the planning when necessary.

Classes could also use the class book to record whole class activities and children's own observations using photographs and written examples, which can then be used towards assessment.

Before Teachers start **each new unit,** they undertake an assessment of the children's prior knowledge and understanding of the concepts to be covered. This is used to inform planning.

Every term, teachers use the National Curriculum Programmes of Study and lesson objectives from the scheme of work to assess the level of each pupil in every term and record these levels onto an assessment grid specific to their year group, which are then used to inform progress and planning. Assessment is based on teacher assessments against the objectives and children are marked as either Emerging, Expected or Exceeding within their year group. These grids are shared with the Science Subject Leader and the Assessment Co-ordinator.

RESOURCES AND COMMUNITY LINKS

In order to encourage an investigative approach to learning, the school will contain sufficient basic equipment to allow simple investigations, observations and measurements to be carried out in small groups. The Science Subject Leader will see that this level of resourcing is maintained and will administer the allocated budget for science. All staff have a duty to ensure the equipment is cared for, used and stored appropriately. Teachers will inform the subject leader of any resources that need replacing. Resources, teaching materials and background information on science are held centrally in the school resource room. ICT equipment can be found in the ICT room or in individual classrooms.

The science section of the school library is continuously being developed to reflect the science curriculum and teaching needs, as well as individual class book boxes, containing engaging science books to suit a variety of readers.

SUBJECT LEADER'S ROLE

The Subject Leader will:

- Provide professional leadership and management for science and will ensure that it is managed and organised so that it meets the aims and objectives of the school
- Will monitor teaching and learning within the subject through monitoring of classroom teaching, planning and books in all year groups on a yearly basis
- Will manage the resources for science and will maintain the stock to meet the needs of the curriculum

The effectiveness of the science curriculum will be evaluated in discussions with the Headteacher, Senior Leadership Team and the Science Subject Leader. Priorities for in service support and external review will be established.

This evaluation will form the basis for an action plan which will then inform the School Improvement Plan.