

## Emmbrook Junior School



### Science Policy

**Responsibility of:** Curriculum and Pupil Achievement (CPA) Committee  
**Date of Policy:** November 2016  
**Date of Review:** September 2018

### 2014 Mission Statement

The Emmbrook Junior School community works together to further develop each child's abilities by creating a nurturing and motivating environment for learning. Each child's self-confidence will be strengthened, so they make good academic progress, whilst gaining increasing resilience and respect for the community

### Introduction

This policy states the principles on which the planning, implementation and evaluation of Science in the curriculum are based. This policy will be reviewed by the staff and the governing body on a regular basis. The implementation of this policy will be monitored by the subject leader and the Head Teacher.

### The Nature of Science

Science teaches an understanding of natural phenomena. The subject allows children to make discoveries through systematic exploration. This is achieved by carrying out investigations and learning to ask scientific questions, both individually and as part of a group. By harnessing the use of evidence and obtaining their own evidence this helps children to understand the world in which we live.

The aims of Science are:

- to provide a science curriculum as laid down in the programmes of study for the subject, which is accessible to every child at a level appropriate to their ability, enabling children to:

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

become equipped with the scientific knowledge required to understand the **uses and implications** of science, today and for the future.

- to foster the following attitudes:
  - enjoyment
  - curiosity
  - perseverance
  - creativity
  - willingness to tolerate uncertainty
  - respect for evidence
  - open mindedness
  - respect for the environment
  
- to ensure that all children work safely and sensibly.

## **Science Curriculum**

Emmbrook Junior School follows the programmes of study set out in the Primary Science National Curriculum 2014.

The programmes of study in the National Curriculum describe a sequence of knowledge and concepts. We recognise that it is important that children make progress. It is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage.

### **Science in Years 3 and 4**

The principal focus of science teaching in years 3 and 4 is to enable our children to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first to talk about and, later, to write about what they have found out.

'Working scientifically' will be taught through and clearly related to substantive science content in the programme of study.

Additionally, our children should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.

### **Science in Years 5 and 6**

The principal focus of science teaching in years 5 and 6 is to enable children to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. Additionally they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Children should draw conclusions based on their data and

observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

'Working and thinking scientifically' will be taught through and clearly related to substantive science content in the programme of study.

Furthermore, our children should read, spell and pronounce scientific vocabulary correctly

## **Teaching and Learning**

A variety of teaching methods are used to maximise the learning opportunities for all children. These include:

- individual and group tasks, which are open-ended and aimed at an appropriate level of ability, that require children to ask questions, collect, analyse and interpret data, draw conclusions and present findings
- the use of a wide range of appropriate resources including a variety of books, internet, interactive applications, pictures, posters, DVDs, CD-ROMs and visiting speakers

**In addition to these methods a variety of cross-curricular links should be used to maximise learning opportunities for all children. These will include:**

### English

Science contributes to the teaching of English in our school by providing valuable opportunities to reinforce what the children have been doing during their English lessons. The planning, recording and concluding of investigations require children to articulate their ideas orally and in writing. Moreover, it allows children to compare and contrast their views with those of other people, and to justify their own.

### Mathematics

Mathematics is closely linked to Science because it enables children to present scientific results in graphs and tables and to interpret them. Mathematics also gives children the necessary skills they need in measuring and solving scientific problems

### Computing

We use computing to support science teaching when appropriate. Children use hardware, such as the digital microscope and data loggers to enhance their skills in planning and carrying out investigations. In addition, the use of websites and multi-media presentations allow children to develop their knowledge and understanding of science topics.

### Personal, social and health education (PSHE) and Citizenship

Science contributes to the teaching of PSHE. We encourage the children to develop a sense of responsibility in following safe procedures when carrying out investigations. They also learn about health and healthy diets through their study of life and life processes. Their work encourages them to be responsible and to set aims as a focus for their work.

### Spiritual, Moral, Social and Cultural (SMSC) Development

The teaching of Science offers opportunities to support the social development of our children through the way we expect them to work with each other in lessons. Our groupings allow children to work together, and give them the chance to discuss their ideas and feelings about their own work and the work of others. Through their collaborative and co-operative work across a range of activities and experiences in Science, the children develop respect for the abilities of other children and a better understanding of themselves. They also develop a respect for the environment, for their own health and safety and for that of others. They develop their cultural awareness and understanding, and they learn to appreciate the value of differences and similarities. A variety of experiences teaches them to appreciate that

all people are equally important, and that the needs of individuals are not the same as the needs of groups.

### Inclusion

We teach Science to all children, whatever their ability. We provide learning opportunities that enable all children to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels.

### Assessment

Assessment takes place through a variety of activities:

- informal judgements made through observations during lessons
- questioning
- formal assessment using the Rising Stars Progress Tests. This is a knowledge-based written assessment at the end of each topic

### Resources

Emmbrook Junior School has a wide range of resources to support the teaching of Science across the school. Equipment and materials are centrally stored in the Science cupboard which is locked at all times (the key is kept in the school office). Resources are audited on an ongoing basis to assess what needs to be bought for chosen topics.

### Health and Safety

Teachers carry out risk assessments of all lessons that involve the use of scientific equipment.

An important aspect of Science is to develop the children's awareness of the need to work safely and with due regard to the health and safety of themselves and others. Teachers must refer to the school's Health and Safety Policy for further advice and information. Children will be shown how to use appropriate safety equipment e.g. goggles, gloves aprons etc., and will be given the opportunity to practise skills and techniques under supervision. Annual health and safety checks are carried out to ensure that staff continue to be aware of the need for vigilance in this area. The teacher is the final decision maker about safety in his/her classroom. If there is any doubt about how to work safely, or the capacity to provide the necessary level of supervision, the activity should be postponed until advice from the Subject Leader or Head Teacher has been obtained. If activities are deemed to be dangerous, other alternatives should be sought.

### Monitoring and Review

The monitoring of the standards of children's work and of the quality of teaching in Science is the responsibility of the Science Subject Leader. The work of the Subject Leader also involves supporting colleagues in the teaching of Science, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school by writing the Science Action Plan and updating the policy. The Science Subject Leader provides the Senior Leadership Team with information through reviewing planning and topic coverage and reviewing the progress towards the targets in the School Improvement Plan. Samples of good work from each year group are collected and used to create a portfolio of work.

### ***Approved by Governing Body***

***Chair of Governors***

***Date 01.11.2016***

***Head Teacher***

***Date 01.11.2016***