



Science Policy

1 Aims and objectives

1.1 Science teaches an understanding of natural phenomena. It aims to stimulate a child's curiosity in finding out why things happen in the way they do. It teaches methods of enquiry and investigation to stimulate creative thought. Science changes as human understanding and experience changes. It is an ongoing process as our ideas about the world around us are constantly developed and revised. Children learn to ask scientific questions and begin to appreciate the way science will affect their future on a personal, national, and global level.

The aims of science are to enable children to:

- ask and answer scientific questions;
- develop skills which may not be developed to the same degree in other areas of the curriculum.
- plan and carry out scientific investigations, using equipment, including ICT correctly;
- know and understand the life processes of living things;
- know and understand the physical processes of materials, electricity, light, sound and natural forces;
- know about the nature of the solar system, including the earth;
- evaluate evidence and present their conclusions clearly and accurately.

2 Teaching and learning style

2.1 We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's knowledge, skills, and understanding, as well as a sense of enjoyment in science. Sometimes we do this through whole-class and small group teaching, while at other times we engage the children in an enquiry-based research activity. We encourage the children to ask, as well as answer, scientific questions. They have the opportunity to use a variety of data, such as statistics, graphs, pictures, and photographs. Children use ICT in science lessons where it enhances their learning. They take part in role-play and discussions and they present reports to the rest of the class. They engage in a variety of problem-solving activities. Wherever possible, we involve the pupils in practical activities as these increase enthusiasm and motivation and provide first hand experience.

Practical activities provide the children with a range of contexts allowing safe exploration of the world. By taking part in practical activities children with special educational needs are given the opportunity to develop fine motor skills and co-ordination. Knowledge and skills can be developed in small steps through practical work. Sequencing of written work becomes easier after practical experiences.

2.2 We recognise that there are children of widely different scientific abilities in all classes and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways by:

- setting common tasks which are open-ended and can have a variety of responses;
- setting tasks of increasing difficulty (we do not expect all children to complete all tasks);
- grouping children by ability in the room and setting different tasks for each ability group;
- providing resources of different complexity, matched to the ability of the child;
- where possible, using classroom assistants to support the work of individual children or groups of children.
- Mixed ability groups in which pupils plan and work together but record their work separately.

3 Science curriculum planning

3.1 The school uses the Kent scheme of work for science as the basis of its curriculum planning. Some topics may be adapted to the local circumstances of the school and we will make use of the local environment and available natural resources where possible. The teacher and science co-ordinator will arrange this where needed.

3.2 We carry out our curriculum planning in science in three phases (long-term, medium-term and short-term). The long-term plan maps the scientific topics studied in each term during the key stage. The science subject leader works this out in conjunction with teaching colleagues in each year group. In some cases we combine the scientific study with work in other subject areas, at other times the children study science as a discrete subject. As we teach the scheme on a two year cycle two year groups may be studying the same topic at one time, children will not repeat a topic they have studied the previous year.

3.3 Our medium-term plans, are based on the Kent science schemes of work and give details of each unit of work for each term. The class teacher will annotate these plans and the science subject leader reviews them regularly. In this way we ensure complete coverage of the National Curriculum without repeating topics.

3.4 The class teacher is responsible for writing the lesson plans for each lesson (short-term plans). These plans list the specific learning objectives of each lesson. Learning objectives for each lesson are made explicit to pupils at the start of each lesson. These are often part of a weekly plan.

3.5 Where possible we have planned the topics in science so that they build upon prior learning. We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit and we also build progression into the science scheme of work, so that the children are increasingly challenged as they move up through the school.

4 The contribution of science to teaching in other curriculum areas

4.1 English

Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. Some of the texts that the children study in Literacy may be of a scientific nature. The children develop oral skills in science lessons through discussions and through recounting their observations of scientific experiments. They develop their writing skills through by recording information.

4.2 Mathematics

Science contributes to the teaching of mathematics in a number of ways. The children use weights and measures and learn to use and apply number. Through working on investigations they learn to estimate and predict. They develop the skills of accurate observation and recording of events. They use numbers in many of their answers and conclusions. They also produce diagrams, charts and graphs using the data from real investigations.

4.3 Information and communication technology (ICT)

Children use ICT in science lessons where appropriate. They use it to support their work in science by learning how to find, select, and analyse information on the Internet. Children use ICT (computer, camera, IPAD's) to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

4.4 Personal, social and health education (PSHE) and citizenship

Science makes a significant contribution to the teaching of personal, social and health education. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. For example, children study the way people recycle material and how environments are changed for better or worse. Secondly, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions. Science promotes the concept of positive citizenship.

4.5 Spiritual, moral, social and cultural development

Science teaching offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the nature of our world. Science raises many social and moral questions. Through the teaching of science, children have the opportunity to discuss, for example, the effects of smoking and the moral questions involved in this issue. We give them the chance to reflect on the way people care for the planet and how science can contribute to the way we manage the earth's resources. Science teaches children about the reasons why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people.

5 Teaching science to children with special needs

5.1 We teach science to all children, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education for all children. We provide learning opportunities that are matched to the needs of children with learning difficulties. Our work in science takes into account the targets set in the children's Individual Education Plans (IEPs).

6 Assessment and recording

6.1 We assess children's work in science by making informal judgements as we observe them during lessons. On completion of a piece of work, the teacher marks the work and comments as necessary, using the schools marking policy. We use APP to assess each child in science and individual assessment books the level the child is at for science.

6.2 Data for the levels children are at will be collected at least 3 times a year and will be analysed to ensure that all children are making progress or being supported to make progress. The Science leader will request data and give all teachers a copy of the analysis each time.

6.2 We report progress in science to parents during parents evenings and end of year reports.

6.3 Assessment books will be regularly monitored by the coordinator for variation within school to be monitored. APP levels for science will be put in each child's assessment books and updated at least once each term. Overall judgement sheet will be filled in on the front page according to where the child's APP shows them. Levels will be recorded as low, secure or high. One piece of science work, usually an investigation will be put in the book each half term.

7 Resources

7.1 Resources for science are mostly kept together and are located on the middle floor on and next to the balcony. IPAD's and Notepads are timetabled to classes and can be used for children's individual research. Staff need to inform the co-ordinator of any requirements for new apparatus, any broken apparatus and of any other issues regarding resources.

8 Monitoring and review

8.1 It is the responsibility of the science subject leader to monitor the standards of children's work and the quality of teaching in science. The science subject leader is also responsible for supporting colleagues in the teaching of science, for being informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school.

8.2 The science subject leader gives the senior management team an annual (or more regular) summary report in which she evaluates strengths and weaknesses in the subject and indicates areas for further improvement. The science subject leader has specially-allocated time for fulfilling the vital task of reviewing samples of children's work, looking at planning and observing lessons.

8.3 The policy for science will be reviewed each year and discussed with the Senior management team and staff.

8.4 The policy for science will be available to view online for parents, carers, students and other visitors to the school.

Signed:

Date:

