

Red Hall Primary



Science Policy

Science Team

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1. Aims and Objectives

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. Children learn to ask scientific questions and begin to appreciate the way science will affect their future on a personal, national, and global level.

Tell me and I will forget,

Show me and I may remember,

Involve me and I will understand

Aristotle

The aims of science are to enable children to:

- Stimulate and excite pupils' curiosity about changes and events in the world;
- Satisfy this curiosity with knowledge
- Engage pupils as learners at many levels through linking ideas with practical experience;
- Encourage children to see themselves as scientists
- Help pupils to learn to question and discuss scientific issues that may affect their own lives
- Help children to raise their own scientific questions and offer suggestions of how to test these fairly
- Help pupils develop, model and evaluate explanations through scientific methods of collecting evidence using critical and creative thought
- Develop the accurate use of scientific vocabulary through a range of enjoyable and interesting experiences
- Develop the skills to make systematic enquiries

2. Teaching and learning style

Science is important because:

- it is a body of knowledge essential to our understanding of the world around us
- it has built up a methodology for thinking which today forms the basis of most intellectual enquiry
- the skills and knowledge of science have wide applicability in everyday life.

As in other areas of the curriculum, Science is taught in accordance with our Teaching and Learning Policy. Each child is taught at his or her own level through a planned progression of learning activities to enable them to achieve their full potential.

Differentiation is met through task or outcome to ensure all children have access to the science curriculum.

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We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's knowledge, skills, and understanding. Sometimes we do this through whole-class 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 use ICT in science lessons where it enhances their learning. They engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in 'real' scientific activities. The pupils take full advantage of the children's kitchen, the allotment and the woodland.

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 provide a variety of approaches and tasks appropriate to ability levels. These include:

Groups are often mixed in ability to promote peer teaching;

We specifically target and support children with learning barriers or who are having difficulty in understanding particular concepts or vocabulary;

Teachers and TAs work with specific children to promote understanding;

We have good quality resources, centrally stored.

Children are required to participate in scientific experiments (Working Scientifically). They are required to:

Plan an investigation

Obtain and record evidence

Present evidence

Consider evidence

Evaluate their investigation

These then are required to be put into their Science Books.

3. Science curriculum planning

Science is taught, where possible, with links to the main topic being covered each term or half-term. At times, however, the main topic being taught will not link comfortably with the science topic so in these cases science will need to be taught as a discrete subject.

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 most cases we combine the scientific study with work in other subject areas, promoting cross curriculum links. At other times the children study science as a discrete subject.

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Our medium-term plans are built into Topic Areas. The science subject leader keeps and reviews these plans. By reviewing these medium-term plans, the science team will be able to assess the depth of coverage and will be able to provide support where needed as well as making sure that there is adequate and sufficient coverage in each class. Science may not be taught every half term but instead is taught in blocks where science is the focus for a half term.

In science children should build upon prior learning, making links between their own knowledge and the new information. 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. Foundation Stage

We teach science in reception classes as an integral part of the topic work covered during the year. As the reception class is part of the Foundation Stage of the National Curriculum, we relate the scientific aspects of the children's work to the objectives set out in the Early Learning Goals (ELGs) which underpin the curriculum planning for children aged three to five. Science makes a significant contribution to the objective in the ELGs of developing a child's knowledge and understanding of the world, e.g. through investigating what floats and what sinks when placed in water.

5. The contribution of science to teaching in other curriculum areas

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 the Literacy are 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 writing reports and projects and by recording information.

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.

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 and on CD-ROMs. Children use ICT to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

Personal, social and health education (PSHE) and citizenship

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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 take part in topics and learning about the human body and how our choices affect our physical well-being.

6. Teaching science to children with special educational needs

At our school we teach science to all children, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our science teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Assessment against Science tracking allows us to consider each child's attainment and progress against expected levels.

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, and differentiation – so that we can take some additional or different action to enable the child to learn more effectively. This ensures that our teaching is matched to the child's needs.

We enable pupils to have access to the full range of activities involved in learning science. Where children are to participate in activities outside the classroom, for example, a trip to a science museum, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

7. Safe practice

Safe practice must be promoted at all times. The Association of Science Education publication, "Be Safe!" has been adopted by the governing body as the school's safety policy in science. A copy is available in Science Co-ordinators file. Teachers must also take into account the school's Health and Safety policy. Particular attention must be given to avoiding the use of anything that affects individual pupils' allergies.

8. Assessment and recording

To ensure children are tracked and targeted for progression on-going assessments and teacher-based judgments are made during the topic and throughout the year. This information is then used to target individual/groups of children who are working above or below expectations. The science subject leader can keep samples of children's work in a portfolio and uses these to demonstrate what the expected level of achievement is in science for each age group in the school.

9. Resources

We have sufficient resources for all science teaching units in the school. We keep these in a central store behind the gym. The resources should be accessed by staff ONLY. It also contains a supply of science topic books and computer software to support children's individual research. Concept Cartoons, Discovery Dog and Spellbound are all located on the staff's network. As well as an annual budget there is money for consumable resources such as batteries; any specific expenditure needed will always be considered such as trips or special visits.

10. Monitoring and review

It is the responsibility of the science subject leader to monitor the standards of children's work and the quality of teaching in science. Monitoring activities include:

- pupils book scrutiny
- teachers medium term planning
- pupil discussions
- lesson observations (in line with school's lesson observation protocol)
- quality of science displays

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 for the subject in the school. The science subject leader gives the head teacher an annual summary report in which they evaluate strengths and weaknesses in the subject and indicates areas for further improvement.

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