

Crick Primary School

Science Policy

1 Aims and objectives

1.1 Science teaches an understanding of natural phenomena, aiming 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.

1.2 The aims of science at Crick Primary School enable children to:

- ask and answer scientific questions;
- plan and carry out scientific investigations, using equipment, including computers, 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 Staff use a variety of teaching and learning styles in science lessons with a principal aim to develop children's knowledge, skills, and understanding. We do this through group and paired work and through enquiry-based research activities. We encourage the children to ask, as well as answer, scientific questions. Pupils have the opportunity to use a variety of data, such as statistics, graphs, pictures, and photographs and they use ICT in science lessons where it enhances their learning. The children take part in discussions and they present reports to the rest of the class. They engage in a wide variety of problem-solving activities and, wherever possible, we involve the pupils in 'real' scientific activities such as researching a local environmental problem, or carrying out a practical experiment and analysing the results.

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;
- using classroom assistants to support the work of individual children or groups of children.

3 Science curriculum planning

- 3.1** Science is a core subject of the National Curriculum. The science curriculum at Crick Primary School is planned in accordance with the National Curriculum programmes of study.
- 3.2** Science is planned and taught as part of the school's creative curriculum under a broader heading of 'knowledge and understanding of the world'. At times, it may also be studied as a discrete topic, e.g. sex education.
- 3.3** 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.
- 3.4** Our medium-term plans give details of each unit of work for each term. The science subject leader keeps and reviews these plans. In this way we ensure complete coverage of the National Curriculum without repeating or omitting topics.
- 3.5** Short term planning is the responsibility of individual teachers who build on the medium term plan by taking account of the needs of the children in a particular class and identifying ways in which ideas might be taught.
- 3.6** We plan units of study 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. 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

- 4.1** 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.

5 The contribution of science to teaching in other curriculum areas

5.1 Literacy

Science contributes significantly to the teaching of literacy in our school through the skills of reading, writing, speaking and listening. Some of the texts that the children study within literacy lessons are of a scientific nature. The children develop oral skills in science lessons through discussion and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and by recording information.

5.2 Numeracy

Science contributes to the teaching of numeracy 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. Pupils

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develop the skills of accurate observation and recording of events. Children use numbers in many of their answers and are encouraged to explain results within their conclusion.

5.3 Information and communication technology (ICT)

Children use ICT in science lessons where appropriate to support their work by learning how to find, select, and analyse information on the Internet and on CD-ROMs. Children use ICT to record, present or interpret data and they are encouraged to review, modify, evaluate and improve presentation.

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

Science makes a significant contribution to the teaching of personal education through matters concerned with growing up and adolescence. Social and health education lends itself to raising matters concerned with hygiene and a healthy lifestyle. The effects of smoking and alcohol abuse, along with discussion on drugs that benefit the body and those which are harmful are also considered.

5.5 Spiritual, moral, social and cultural development

Science teaching offers children many opportunities to examine some of the fundamental questions in life such as 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, our 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.

6 Teaching science to children with special educational needs

6.1 At Crick Primary 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 the National Curriculum allows us to consider each child's attainment and progress against expected levels.

6.2 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, 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.

Intervention through School Action and School Action Plus will lead to the creation of an Individual Education Plan (IEP) for children with special educational needs.

- 6.4** 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, staff carry out a risk assessment prior to the activity to ensure that the activity is safe and appropriate for all pupils.

7 Assessment and recording

- 7.1** Teaching staff 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. At the end of a unit of work s/he makes a summary judgement about the work of each pupil in relation to the National Curriculum level of attainment. Teachers may make use of printed materials such as 'minisats' or the Rising Stars series, in order to reach a judgement about each child's attainment. The teacher records the attainment grades in a mark book. We use these grades as the basis for assessing the progress of each child and we pass this information on to the next teacher at the end of the year.
- 7.2** Teachers make an assessment of the children's work in science at the end of Key Stage 1. We report the results of these tests to parents along with the teacher assessments which we make whilst observing the work of children throughout the year.
- 7.3** The science subject leader keeps 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.

8 Resources

School resource boxes for QCA units of work.
School library resources.
Science topic book loans from library service.
Video material and software in school resource bank.
Science focus days.
Science theatre visits.
Visits to places of scientific and environmental interest.

9 Monitoring and review

- 9.1** 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. The science subject leader gives the headteacher a school improvement plan in which s/he 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 and visiting classes to observe teaching in the subject.

Reviewed: November 2009

Next Review Date: November 2012