St John's CE (VC) First School, Bishops Wood

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. 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 national curriculum for science aims to ensure that all pupils:

• 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.

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

2 Teaching and learning style

2.1 We use a variety of teaching and learning styles in science lessons. Visual Learning is a key aspect of our science lessons. We encourage children to reflect and question their learning so we can help them progress and support all children to achieve the best that they can. 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 have the opportunity to use a variety of data, such as statistics, graphs, pictures, and photographs. They 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 'real' scientific activities, for example, 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

- we use the bronze, silver and gold success criteria to support differentiation throughout the classroom
- 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 whenever possible
-

3 Science curriculum planning

3.1 We plan our Science curriculum based on the National Curriculum. We ensure fieldwork is carried out locally and use educational visits to explore further.

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. We combine the scientific study with work in other subject areas. Science is taught as a discrete subject, meaningful links are made with topics and other subject areas only where appropriate.

3.3 Our medium-term plans, give details of the work for each term. As we have some mixed-age classes, we do our medium-term planning on a two-year rotation cycle. In this way we ensure complete coverage of the National Curriculum without repeating topics. Topics may change when they are taught throughout the year to fit in cross curricular links.

3.4 The class teacher is responsible for writing the medium and short term plans for Science. These plans list the specific learning objectives of each lesson. The class teacher keeps these individual plans, and s/he and the science subject leader often discuss them on an informal basis.

3.5 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.

3.6 STEM is taught throughout the school as a topic each academic year to help bring a variety of skills and knowledge together.

3.7 Each year we take part in The National Science week. Afternoons are dedicated to teaching and exploring a variety of science themes throughout the school.

4 Foundation Stage

4.1 We teach science in reception class as an integral part of the topic work covered during the year. Science is taught mainly through 'The World' aspect of the 'Understanding of the World' area of learning and the 'Health and Self Care' aspect of the 'Physical Development' area of learning of the Early Years Foundation Stage curriculum. Scientific skills are also taught in other areas of learning. Children are assessed using the EYFS profile.

5 The contribution of science to teaching in other curriculum areas

5.1 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 English are of a scientific nature. The children develop oral skills in science lessons through discussions (for example of the environment) and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information. Children are expected to apply writing skills taught in English lessons to their Science work.

5.2 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 present Scientific data in a range of ways.

5.3 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 collect data using data loggers and they use ICT to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

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

Science makes a significant contribution to the teaching of personal, social and health education. Through Science children learn the importance of Healthy Eating, exercise and tooth care. The subject raises environmental issues such as recycling and conservation and allows the children to take part in discussions and debates. Science promotes the concept of positive citizenship.

5.5 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.

6 Teaching science to children with additional educational needs

6.1 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 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.

6.3 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, we 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 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 in accordance with the marking policy. This includes assessing whether or not the success criteria have been met and giving a gap task to move learning on or address misconceptions before the next lesson. Child friendly assessment targets are used to assess the level each child is attaining in AT 1. These sheets are in the front of the children's books and are updated regularly. The children are also assessed on their level of attainment in AT2, 3 and 4 during each year. These judgments then form the basis of their report at the end of the year which goes to parents. The next teacher/ school are also given a copy of these assessments. It is also an opportunity for children to assess themselves against the Assessment Targets.

7.2 We assess the children's work in science at the end of Key Stage 1, against the Interim Teacher Assessment Frameworks. Children are assessed against a set of standards and evidence is collected to show whether children have met all of the standards. Children must meet all of the standards during Key Stage One in order to have met the expected standard. It is recorded whether children have met or have not met the expected standard and this is reported to parents at the end of KS1.

7.4 Pupils also complete assessment activities at the beginning and end of each topic. They are encouraged to reflect on their progress, what they are doing well with and how they think they could improve. They complete their own assessment and reflection of their learning at during and at their end of each lesson in relation to their Visual Learning.

8 Resources

8.1 We have sufficient resources for all science teaching units in the school. we use the ICT suite to support children's individual research. We also use outside agencies to support the units of work where appropriate.

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 an annual audit report 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.