Maryport C of E Primary School Science Policy

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.

The aims of science are to enable 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
* equip them with the scientific knowledge required to understand the uses and implications of science, today and for the future,
* plan and carry out scientific investigations, using equipment, including computers and iPads 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,
* gain a deeper understanding of the world we live in.

2 Teaching and learning style

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 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 wide 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.

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;
* grouping children in mixed ability groups to help support each other with tasks,
* using classroom assistants to support the work of individual children or groups of children.

3 Science curriculum planning

Maryport C of E Primary School uses the 2014 national curriculum scheme of work for science as the basis of its curriculum planning. All units of science from the national curriculum are mapped out in the schools long and medium term planning and refined in short term planning. This ensures statutory content and skills are covered. We use a variety of schemes of work, including the Ogden Trust schemes, to ensure coverage of the programme of study for science. This scheme of work is adapted by teaching staff in accordance with the learning needs of the children across the school. The pupils have access to a broad and balanced science curriculum.

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.

Our medium-term plans, which we have based on the national scheme of work in science, give details of each unit of work for each term. The science subject leader keeps and reviews these plans. 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.

The class teacher is responsible for writing the daily lesson plans for each lesson (short-term plans). 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.

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

Science has many strong links with other subjects as well as constantly reinforcing children’s basic skills.

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 Hour 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.

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 whenever appropriate in science lessons. This includes using computers, the internet, tablets, cameras and movie creators. Children also 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

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. They organize campaigns on matters of concern to them, such as helping to protect our local woodland. Science promotes the concept of positive citizenship.

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 deforestation 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 educational needs

At our schoolwe 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.

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.

6 Assessment and recording

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. Children also complete a short assessment at the end of each term. The teacher records the assessment scores in a spreadsheet/ tracking sheet on the server. We use these tracking sheets and scores 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.

Scientific work is recorded in a variety of ways appropriate to the age of the children and their individual needs in each key stage. This can include teacher observations, photographs, drawings, tables, graphs, written accounts and formal write ups. It is expected that all recorded science work is to be presented to a high standard but not to the detriment of science investigations or the teaching and learning aspect of the lesson. 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.

7 Resources

We have sufficient resources for all science teaching units in the school. We keep these in a central store where there is a box of equipment for each unit of work. The library contains a good supply of science topic books and each class also has access to their own iPads which both help to support children’s individual research.

**8**  **Health and Safety**

Safe working practices are an integral part of all Science activities. All staff are aware of safe and correct handling of tools, materials and equipment. The teaching staff demonstrate to pupils how to work safely and ensures that all children using equipment are properly supervised

**9 Equal Opportunities**

Consideration is always given in respect of cultural differences and experiences and to children whom English is an additional language. All children with Special  
Educational Needs are provided with challenging experiences in a flexible manner suited to their individual requirements.

10 Monitoring and review

The science subject leader monitors the standards of children’s work and the quality of teaching in science. This is done through looking at planning, scrutinising children’s books, reviewing samples of children’s work, looking at the learning environment and visiting classes to observe teaching in the subject. The science subject leader is also responsible for supporting colleagues in the teaching of science and for being informed about current developments in the subject. The science subject leader is allocated time to monitor the delivery of science teaching and the quality of learning across the school.

Subject leader: Rachel Huddart

Date: Spring 2023

(Next review date: Spring 2024)