Norton CEVC Primary School
Science Policy

Learn Believe Achieve
Hand in hand with God and each other

Introduction

When a child leaves this school, we want them to have achieved a secure understanding of basic scientific concepts and skills and work together to apply these in a range of contexts. They will have learned a range of scientific vocabulary which they can use in their own explanations. They will be excited to explore science practically and develop the confidence and self-belief to manage risks and persevere when tests or measurements need to be repeated. The opportunities they have in school will encourage them to feel awe and wonder of the real world and develop a sense of fascination and curiosity about natural phenomena. Pupils should understand the importance of how to look after themselves physically and understand the emotional changes they will go through as they grow and be resilient as they begin to face these changes. The children should be inspired and excited to investigate ideas and challenge themselves to find out how the world works, to know that science has changed our lives and is vital to the world's future prosperity. They will understand the place of science in the real world and the importance of communities coming together to combat global warming, deforestation and pollution.

How is Science taught?

The school's policy for science is based on the 2014 Curriculum for Key Stages 1 and 2. Science is a core subject and is taught weekly for 60-90 minutes from Year 1 - 6, allowing key skills to be embedded and concepts to be reviewed regularly. 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:

- 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

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 also use ICT in science lessons where appropriate. Wherever possible, we involve the pupils in 'real' scientific activities, for example, researching a local environmental problem or carrying out a practical experiment then analysing and presenting 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:

- 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;
- Encouraging children to decide what to test, how to test it and how to record their findings;
- Providing key scientific terminology and giving opportunities for children to show their understanding by using the vocabulary.

In each science unit, e.g. Plants, teachers explicitly refer to ways in which children are working scientifically. The specific strands are as follows:

- Ask questions and predict
- Plan
- Observe and measure
- Set up and perform a test
- Record
- Report
- Conclude

In Key Stage 2, this is monitored through a Working Scientifically Butterfly in each child's book. In Key Stage 1, a classroom display shows evidence of how children are working towards these scientific skills.

Science Curriculum Planning

The school follows the programme of study outlined in the 2014 Curriculum. In addition to this, teachers refer to the PLAN primary science assessment resources such as the knowledge matrices to ensure that key scientific vocabulary, concepts and learning are embedded within their planning. Teachers can also use resources from PSTT's Explore, Engage, Extend book. We carry out our 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. In some cases we combine the scientific study with work in other subject areas, especially at Key Stage 1; at other times the children study science as a discrete subject. Our medium-term plans give details of each unit of work for each term. The short-term plans list the specific learning objectives, activities and outcomes for each lesson. We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit.

Early Years Foundation Stage

Scientific skills in the reception class are taught as an integral part of the topic work covered during the year. The scientific aspects of the children's work are related to the objectives set out in the Early Years Outcomes. Science makes a significant contribution to achieving the Early Years Outcomes and understanding of the world, e.g. through investigating what floats and what sinks when placed in water.

The contribution of science to other subjects

English

- Reading texts of a scientific nature
- Discussing what they have learnt
- Recounting observations of scientific experiments
- Writing reports and recording information

Mathematics

- Using weights and measures and applying number
- Estimating and predicting in investigations
- Recording, presenting and interpreting data

Information and communication technology (ICT)

- Finding, selecting, and analysing information
- Recording, presenting and interpreting data
- Reviewing, modifying and evaluating their work
- Taking measurements

Personal, social and health education (PSHE) and citizenship

- Raising matters of citizenship and social welfare
- Taking part in debates and discussions
- Organising campaigns on matters of concern to them
- Promoting the concept of positive citizenship
- Understanding their bodies and how to keep them healthy

Teaching science to children with special educational needs and more able pupils

We teach science to all children, whatever their ability. Science forms part of the school's curriculum policy to provide a broad and balanced education to all children. We provide learning opportunities matched to the needs of the children.

SMSC in the Science curriculum

Science provides many opportunities to embed SMSC across the curriculum and we make a conscious effort to ensure that our children benefit from this whenever and wherever possible.

Spiritual Education in Science involves the search for meaning and purpose in natural and physical phenomena. It is the wonder about what is special about life, an awe at the scale of living things from the smallest minibeast to the largest tree and the interdependence of all living things and materials on Earth. It concerns the emotional drive to know more and to wonder about the world and appreciate its wonders.

Moral Education in Science encourages children to become increasingly curious, to develop open-mindedness to the suggestions of others and to make judgements on evidence, not preconceived opinions. Our children realise that moral dilemmas are often involved in scientific developments. When considering the environment, the use of further natural resources and its effect on future generations is an important moral consideration.

Social Education in Science involves practical group work which provides opportunities for pupils to develop their team-working skills and to take responsibility for their own learning. They must consider the safety of themselves and others during this practical work. It is made clear to them that science has a major effect on the quality of our lives. The children are encouraged to consider the benefits and drawbacks of science, as well as technological developments and the social responsibility involved.

Cultural Education in Science involves thinking of scientific discoveries as much as a part of our culture as great music and films. Credit is given to scientific discoveries of other cultures and science is seen as contemporary activity since developments are made all over the modern world. Children are encouraged to see it is an activity undertaken by a wide range of men and women in many different cultures both past and present.

Assessment and recording
We assess children's work in science by making informal judgments as we observe them during each science lesson. At the end of a unit of work, the teacher makes a summary judgment about the work of each pupil in relation to the objectives stated in the national curriculum. This assessment is recorded on our online Assessment tool 'Insight'. The system allows teachers to track children's progress and informs their planning.

The Working Scientifically Butterfly, as mentioned previously, acts as a tracker of the working scientifically objectives and enables teachers and pupils to track which skills have been covered. At the end of each half term, the teacher can identify gaps or areas for development which informs planning.

Resources
Resources are kept mainly in a central store and teachers ensure they have any specific materials and equipment necessary to cover the objectives for their year group.

Monitoring and Review
Monitoring the standards of children's work and the quality of teaching in science is carried out periodically. The work of the science subject leader involves supporting colleagues in the teaching of science, being informed about current developments in the subject and providing a strategic lead and direction for the subject in the school.

Signed: C. Gibbse **Date:** Updated September 2024