



Ombersley Endowed First School

Science Policy

Subject Coordinator: Briony Cartwright

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 that 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 in which science will affect the future on a personal, national and global level.

Our objectives in the teaching of science are for all our children:

- to ask and answer scientific questions;
- to plan and carry out scientific investigations, with the correct use of equipment
- To have age appropriate scientific knowledge in line with the National Curriculum and EYFS.

Teaching and learning

We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's knowledge, skills, and understanding. Science is usually taught as a discrete, weekly lesson. This is sometimes linked to our class topics where teachers feel is appropriate. 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 because it enhances their learning. They engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in real scientific activities, e.g. investigating a local environmental problem, or carrying out a practical experiment and analysing the results.

We recognise that in all classes, children have a wide range of scientific abilities, 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 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 staffing to support the work of individual children or groups of children.

Science curriculum planning

Science is a core subject in the National Curriculum. The school bases the curriculum planning on the requirements of the National Curriculum. Using this as our guide we adapt the objectives to the local circumstances of the school so that we make use of the local environment in our fieldwork.

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. It is linked to the topic being taught in each class so that the children can relate their work in science to real-life situations.

Our medium-term plans give details of the science covered in each topic for each term. The science subject leader keeps and reviews these plans. Our medium-term planning is on a two-year rotation cycle. In this way, we ensure complete coverage of the National Curriculum.

The class teacher is responsible for writing the daily lesson plans for each lesson. These plans list the specific learning objectives and expected outcomes 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 on prior learning and promote progression. We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each topic so that the children are increasingly challenged as they move up through the school.

The 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 developing a child's knowledge and understanding of the world, e.g. through investigating what floats and what sinks when placed in water or developing Knowledge and Understanding of the World through Forest School.

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 non-fiction texts that the children study in literacy lessons have a scientific theme. The children develop speaking and listening skills in science lessons through discussions (e.g. 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. When the children use weights and measures, they are learning to use and apply number. Through working on investigations, they learn to estimate and predict. They develop accuracy in their observation and recording of events. Many of their answers and conclusions include numbers.

Personal, social and health education (PSHE) and citizenship

Science makes a significant contribution to the teaching of PSHE and citizenship. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. Also, Sex and Relationships Education is taught throughout each year group using appropriate materials as part of science and PSHE curriculum coverage. This is in line with the 2014 National Curriculum expectations for SRE.

Spiritual, moral, social and cultural development

Science teaching offers children many opportunities to examine some of the fundamental questions in life, e.g. 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 in which 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.

Science and inclusion

At our school, we teach science to all children, whatever their ability and individual needs. 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 good progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language, and we take all reasonable steps to achieve this. For further details, see individual whole-school policies: Special Educational Needs; Disability Discrimination; Gifted and Talented Children; English as an Additional Language (EAL).

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. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels. This ensures that our teaching is matched to each child's needs.

Children who are not making progress with support under Worcestershire's 'Ordinarily Available' document will have additional support arrangements within school; this could include support in science lessons.

We enable all 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.

Assessment

Teachers will assess children's work in science by making informal judgements during lessons. On completion of a piece of work, the teacher assesses it, and uses this assessment to plan for future learning. Written or verbal feedback is given to the child to help guide his/her progress and is written in line with the school marking policy.

The teacher completes a tracking sheet termly for each child in which 'I can' statements for each National Curriculum level of attainment are highlighted, for those children who have demonstrated an understanding of the learning objective. This information is passed on to the next teacher at the end of each academic year and has been updated in line with the requirements of the 2014 National Curriculum.

Teachers make an assessment of the children's work in science at the end of Key Stage 1. At the end of Year 4 information is passed on to the Middle school about the children's abilities. This information is summarised in communication to parents verbally at parents' evenings and in a written form in the annual end of year report. All science data is inputted onto our school assessment system termly so that the progress of each child and focus groups (SEN, Pupil Premium) can be monitored closely. Science achievement and progress is reported annually to parents.

The science subject leader keeps samples of children's work in a portfolio, and uses these to demonstrate the expected level of achievement in science for each age group in the school. Book trawls and learning walks are also carried out termly and feedback is given to the staff.

Resources

We have sufficient resources for teaching all science topics in the school. We keep these in a central store. The library contains a good supply of science topic books and computer software to support children's individual research. We aim to update our resources regularly, within the constraints of our budgets.

Health and safety

The Health and Safety policy gives clear guidance on the response and reporting of accidents. All accidents, no matter how slight, should be reported in the school's accident record book, which is kept in the secretary's office. All teachers are responsible for teaching pupils how to use equipment correctly and safely.

Monitoring and review

The coordination of the science curriculum is the responsibility of the subject leader, who also:

- supports colleagues in their teaching, by keeping informed about current developments in science and providing a strategic lead and direction for this subject;
- Use management time to review evidence of the children's work, and to observe science lessons across the school.
- Analyse end of year science data
- Liaises with the school governor responsible for science

This policy will be reviewed in the academic year 2019/2020.

Signed: B Cartwright

Date: **June 2018**