



For the love of learning, friendship and faith

Melling (St Wilfrid) C.E. Primary School

Science Policy

Philosophy

This policy reflects the school values and philosophy in relation to the teaching and learning of Science. It sets out a framework within which teaching and non-teaching staff can operate and gives guidance on planning, teaching and assessment. The policy should be read in conjunction with the scheme of work for Science, which sets out in detail what pupils in different Key Stages will be taught.

Definition and rationale

Science teaches an understanding of natural phenomena. It aims to stimulate a pupil's curiosity in finding out why things happen in the way they do. It teaches methods of enquiry and investigation to stimulate creative thought. Pupils learn to ask scientific questions and begin to appreciate the way Science will affect their future on a personal, national, and global level.

We believe that all pupils of this school must have regular access to Science appropriate to their age and stage of development and that emphasis should be given to this as a core subject.

Aims

Through teaching and learning in Science the pupils are encouraged to:

- enquire, explore and observe so that they can ask questions about themselves and their environment;
- test and experiment in order to progress towards answers to many of their questions;
- look for links and patterns in their Science work;
- record their findings as accurately as possible in appropriate ways for their age and ability;
- draw conclusions of answers from their work and evaluate the evidence gathered;
- develop scientific understanding, knowledge and skills;
- consider health and safety.

These activities will give the pupils experience of:

- hypothesising and predicting
- planning and carrying out investigations
- observing and measuring
- recording & presenting results by appropriate means
- interpreting results and drawing conclusions.

Foundation Stage

In the reception year, we teach 'Science' (Knowledge and Understanding of the World) as an integral part of the topic work covered in the Infant class during the year. As the reception class is part of

the Foundation Stage of the National Curriculum, we relate the scientific aspects of the pupil's work to the objectives set out in the Early Learning Goals (ELGs), which underpin the curriculum planning for pupils aged three to five. Science makes a significant contribution to the objective in the ELGs of developing a pupil's knowledge and understanding of the world, e.g. through investigating what floats and what sinks when placed in water.

National Curriculum

The subject comprises Programmes of Study (the content of the curriculum) and four Attainment Targets (Scientific Understanding; Life and Living Processes; Materials and their properties; Physical Processes. The Programmes of Study are divided into Key Stages.

Teaching and Learning

We use a variety of teaching and learning styles in Science lessons. Our main aim is to develop pupil's knowledge, skills, and understanding. Sometimes we do this through whole-class teaching, whilst at other times we engage the pupils in an enquiry-based research activity as groups or individuals. Pupils may be grouped according to age/year group, ability or 'friendship.' Groupings vary according to the task and the available resources.

We encourage the pupils 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. Where appropriate the pupils may take part in role-play and discussions or 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, carrying out a practical experiment and analysing the results.

Planning, continuity and progression

At Melling we use the National Curriculum for Science as the basis of our curriculum planning. This scheme has been adapted to the circumstances of our small school situation.

We carry out our curriculum planning in Science in three phases (long-term, medium-term and short-term). The rolling programme (long-term plan) maps the scientific topics studied in each term during the key stage. This is worked out by the Science coordinator and is established as a two year rolling programme at KS1 and as a four year rolling programme at KS2. (NB At Key Stage 2, pupils will cover a Science topic in Year 3 or 4, which is extended and covered at a higher level in Year 5 or 6) In some cases we combine the scientific study with work in other subject areas, particularly at Key Stage 1; at other times the pupils study Science as a discrete subject.

Our medium-term plans (half-termly or termly, as appropriate), are primarily based on the QCA/Lancashire Small Schools scheme of work for Science. These give details of each unit of work for each term/half-term. These plans, together with the rolling programme, form our scheme of work for Science. In addition, the curriculum coordinator for Science keeps and reviews these plans. As we have mixed-age classes, we do our medium-term planning on a two-year rolling programme. In this way we ensure complete coverage of the National Curriculum without repeating topics. Short-term lesson plans are completed by the class teacher as the need arises.

Science topics have been developed so that they build upon prior learning. We ensure that there are

opportunities for pupils 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 pupils are increasingly challenged as they move up through the school.

Key skills

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 pupils study in Literacy are of a scientific nature. The pupils develop oral skills in Science lessons through discussions and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information.

Science contributes to the teaching of **mathematics** in a number of ways. The pupils 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 present results in tables and graphs.

Pupils 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. Pupils use ICT to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

Cross-curricular themes/dimensions

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 health, citizenship and social welfare. For example, pupils study the way we keep our bodies healthy (nutrition, exercise etc.), how people recycle materials and how some environments/habitats are changed for better or worse. This also has links with the Geography curriculum. Secondly, pupils benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions.

Science teaching offers pupils 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, pupils 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, pupils 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 pupils about the reasons why people are different and, by developing the pupil's knowledge and understanding of physical and environmental factors, it promotes respect for other people.

Science teaching on sound (musical instruments), materials (food & textiles) and ourselves (similarities and differences) are examples of opportunities for the use of **multicultural** resources and awareness of **cultural and ethnic diversity**.

In addition Science may have links with topics in other curriculum areas.

Equal Opportunities

It is the responsibility of all teachers to ensure that all pupils, irrespective of gender, ability, ethnicity and social circumstance should have access to the Science curriculum and make the greatest progress possible.

Refer to Equal Opportunities Policy

Inclusion

Science is taught to all pupils, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education for all pupils. We provide learning opportunities that are matched to the needs of pupils with learning difficulties. Our work in Science takes into account the targets set in the pupil's Individual Education Plans (IEP). Similarly, pupils who are able/gifted in Science are given opportunities to extend their work, most notably through enquiry-based activities.

Within Science lessons, work is differentiated, where appropriate, according to the needs of the pupils. This may be in the nature of the task, the expected outcome or by the level of support given.

Parental Involvement

Parent involvement in Science is encouraged. Parents may accompany and support the pupils on Science related visits. In addition, parents with a 'scientific' career may be invited into school to talk to the pupils where this fits the curriculum e.g. doctors/dentists when covering 'Ourselves.'

Liaison with Other Schools

At secondary transfer liaison takes place between high schools and feeder schools on a general basis usually prior to transfer.

During the summer term there is an opportunity for year six pupils to visit Queen Elizabeth School, Cumbria to take part in year 6/7 Science lessons.

INSET and Professional Development

Needs are identified through the performance management process, curriculum review, inspection and school development planning. The needs are recorded and prioritised by the headteacher in consultation with the co-ordinator, other staff and governors and are linked with the rolling programme of curriculum development.

Resources (written, practical, outside, visits)

- At present written materials are stored in the KS2 classroom/stockroom, KS1 classroom/stockroom and the office.
- There are a number of books in the school library relating to scientific topics and loans are available from the Schools Library Service.
- Most of the resources are stored in the trays at the back of the KS2 classroom, where they are organised by topic.
- The school grounds are a valuable resource and use may be made of the playground, field, nature area and banking as mini-habitat areas.

Assessment, Recording and Reporting

Assessment in Science is planned and obtained through observation, discussion and evidence. Pupils are assessed against the expected outcomes for Science lessons, the unit expectations or Science attainment targets.

The use of recording formats for pupils may be useful in providing evidence and targeting specific skills. These may vary according to each teacher's preferred style. It should be emphasised that assessment must be formative and manageable. Assessment sheets from published materials may be used if considered suitable.

Pupils in Years 2 and 6 are assessed against the National Curriculum Attainment Targets for Science by teacher assessment.

Records are transferred to the next teacher at the end of Key Stage 1. The annual report to parents contains a comment on Science coverage and attainment.

Refer also to Assessment, Recording and Reporting Policy

Monitoring and Evaluation

Evaluation is carried out to enhance teaching and learning and is the responsibility of all staff. It takes the form of monitoring provision to ensure that each pupil is making the greatest possible progress and reviewing the schemes to ensure that all National Curriculum requirements are being met.

Evaluation will include:

- curriculum content (National Curriculum requirements)
- standards achieved
- pupil's progress and factors influencing progress (teaching, resources, accommodation)
- organisation and teaching methods
- effectiveness of INSET

Evaluation methods will include:

- assessing pupils' work and achievements
- reviewing coverage of Programmes of Study
- analysis of teacher planning
- staff discussion
- classroom observation
- external inspection and advice
- information from parents and governors

Evaluation will be conducted according to subject planning within the School Development Plan and as required by changes in the National Curriculum. It is the responsibility of the curriculum coordinator for Science to monitor the standards of pupils' work and the quality of teaching in Science. The Science coordinator 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.

Signed (Headteacher):

Signed (Chair of Governors):

Date: October 2016

Review Date: October 2019