



**MELLERS PRIMARY SCHOOL
SCIENCE POLICY
January 2017**

Purpose of Study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Aims

At this school we want to give children an education of the highest standard; we aim for excellence in all our school activities and encourage all children, whatever their ability to achieve the best they possibly can.

In pursuit of this aim we believe that children should experience science that is motivating, of relevance and interest so that the children can develop intellectual and practical skills. These skills will allow them to explore the world of science to develop a fuller understanding of scientific phenomena and the procedures for scientific exploration and investigation.

Science stimulates and excites children's curiosity about phenomena and events in the world around them. It also satisfies this curiosity with knowledge. Through play and observation children are learning scientific concepts from a very early age and because of its practical nature science can engage learners at many levels. Children learn to question and discuss science-based issues that may affect their own lives and the direction of society and the future world.

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

Objectives

- To make observations and apply these to scientific investigations
- To seek and identify patterns and relate these to patterns perceived earlier.
- To design and carry out experiments to test their explanations of patterns and observations.

- To communicate verbally, mathematically and in writing what they have carried out and discovered.
- To interpret written and other material.
- To acquire scientific knowledge and understanding and relate this to their investigations.
- To handle equipment safely and effectively.
- To use and apply science across the curriculum and in real life.
- To bring their knowledge to bear in attempting to solve technological problems.
- To develop children's interests, attitudes and aesthetic awareness.

Planning and Organisation

- The National Curriculum 2014 provides the basic framework for learning and teaching in science. Where possible, these are linked to termly topics.
- Long Term, Medium Term and Short Term planning is planned and delivered by the class teacher.
- One unit of work is planned and undertaken each term.
- Science plans year 1 to year 6 provide a progression of scientific knowledge and enquiry skills.
- Plans for Knowledge and Understanding the World in the Foundation Unit provide progression through the Early Years Foundation Stage.
- Children will work individually, in groups, and as a whole class.
- Group work will be of mixed ability and the children will be encouraged to work co-operatively and develop interpersonal skills.

Approaches to teaching

Differentiation

The experiences selected must show the children the practical relevance of science to everyday life and the possible technological and social consequences of science.

Some consideration must also be given to the diversity of ages and ability within a class. A range of experiments must be provided to ensure the fullest involvement of the whole class; the less able must be encouraged and the more able fully challenged. In order to match the work contained within the science curriculum to children's previous experiences and ability differentiation is evident by:

- TASK: different numbers of tasks can be set, relating to one scientific objective, or one task provided with support and materials available to challenge, extend or support learning.

- OUTCOME: open ended activities or science investigations are provided to allow children to show their ability and understanding by the results achieved.
- ORGANISATION: children may work in mixed or similar ability groups/pairs to support and extend learning.
- ADULT SUPPORT: children are given a different level of support from the teacher, L.S.A. or other adults in the classroom.

Special Educational Needs

All children with SEN have learning needs identified and provided for within normal classroom procedures, planned through the development of provision maps. This includes the less and more able. Strengths and weaknesses in scheme areas should be noted at the short term planning stage and any gaps or opportunities for extension work will be addressed.

Teachers will plan in the short term with a specific scientific focus so that children who have learning difficulties will not be hindered during science activities by a requirement for written methods of recording, reading prose format instructions, etc. Differentiation takes account of children's needs and all ability levels in the classroom.

Equal Opportunities

At Mellers Primary School we believe that every individual within the school has the opportunity to achieve their full potential, has the same chance and equal access to all areas of the curriculum. In science this means that all children will have the opportunity:

- To develop the process of systematic enquiry
- To relate their understanding of science to every day life and in environmental contexts
- To communicate using appropriate vocabulary and present scientific information in a number of ways
- To explore aspects of health and safety when working with living things and materials
- To carry out experimental and investigate science
- To develop and apply their ICT capability in their study of science

Staff members make every effort to use stimuli that reflect the cultural diversity of our school and to draw on pupils own experiences. We aim to create a "rich scientific enquiring environment". Boys and girls achievement is planned for equally and bilingual support is sort where possible for pupils to whom English is an additional language. The Mellers Equal Opportunities and Race Equality policies are followed at all times.

Links with Information and Communication Technology

Computer based work is available to all pupils. Children will use IT wherever possible as an integral part of the enquiry process. In particular, children will present their findings from investigation in different formats, using IT to support learning and communication.

Mellers Primary has internet connection. This is used to allow pupils to develop further knowledge and understanding of the subject through research and investigation. Revision

programmes and interactive games are also used to reinforce learning. We use the interactive white board effectively as a teaching and learning tool.

Resources

All science resources are stored within a central area in the school. These resources are for the whole school and Foundation unit to utilise and should be collected/ returned by an adult. Any resources that are broken or not working accurately/ correctly should be reported to the co-ordinator immediately. Renewable resources will be monitored by the co-ordinator to ensure a stock is always available.

When scientific resources are identified through risk assessments as health and safety implications, proper instructions and training must be followed before use, i.e. the use of chemicals in experiments.

Cross Curricular Learning

At Mellers Primary School we recognise science as a core subject and teach it as a discreet subject. However, we also take the opportunity to teach science as part of a wider theme or topic. This allows us to make strong learning links to other areas of the curriculum.

Maths

- Recording of science using graphs, tables, histograms, pie charts, etc
- Practical measurement of time, weight, length, capacity, area, volume and temperature.

English

- Class/ group discussion, debate, description, report back findings, developing vocabulary.
- Listening to class mates, radio/IT sources
- Reading instructions, research, producing class book
- Non fiction writing, reporting, recording, instructing and describing.

History and Geography

- Geographical and historical aspects of the environment
- Work on structure and forces
- Nature of materials
- Energy transfer and other aspects of physical science
- Historical study of key figures impacting on field of science

Design and Technology

- When making cross curricular links with this subject, the distinction needs to be made between the scientific approach of proposing a hypothesis and testing it, from the technological approach of generating design alternatives and testing the best design.
- Links with forces and other aspects of physical science

Health Education and Physical Education

- Ourselves, growth and sex education
- Maintaining bodies in a fit and healthy state
- Performance activities to developing measuring and information processing

Music and Art

- Study of colour and sound
- Recording and developing activities through painting, drawing, modelling, music, drama and dance.

Assessment and Record Keeping

Teachers assess children's progress in the following ways:

- By looking at and marking children's work
- By setting particular tasks/ activities which will demonstrate required outcomes
- Whole class science investigations
- By verbal questioning of pupils while working and by noting their understanding
- Formal SATs testing at the end of Key Stage Two, in sample schools

Children's work is kept in an exercise book, which is marked by the teacher, where possible with the child present. The aim of this marking is to inform future teaching and learning and follows the guidelines set out in the Mellers Primary School Marking Policy. The aim is that children, where appropriate, will reach age related expectations by the end of each academic year. At the Foundation Stage, children's achievements in science are assessed against the Early learning goals, recorded using the programme 2Simple. In Key Stage One and Two the children are assessed against the National Curriculum objectives.

Parents are welcomed at any time to come into school to discuss their child's work and achievements.

Monitoring and Evaluation

Children's progress is monitored through the assessment procedures above.

Monitoring of science teaching and the scheme of work is carried out by the co-ordinator according to the Mellers Primary School monitoring cycle.

Monitoring may involve:

- Observation of science teaching in the classroom
- Examining book/work samples
- Reviewing short and medium term planning
- Interview/questionnaire to staff and children
- Review resource needs
- Review policy documents

Where formal monitoring procedures involve classroom observations, a written report and constructive feedback will be made to the teachers concerned. An overall report of any monitoring will also be prepared to identify strengths and areas for development for science.

Role of the Co-ordinator

In order to support the implementation of the science policy and have a positive effect on the teaching and learning of science at Mellers Primary and Nursery School, the co-ordinator will:

- Review and revise policy on a yearly cycle
- Monitor subject plans, following school policy, to ensure policy in practice.
- Monitor teaching, following school policy, to support the teaching and learning of science
- Use other monitoring techniques to ensure science progression, standards and range is maintained
- Provide support and advice for colleagues on issues regarding children's science development
- Manage science budget allocation to maintain resources
- Audit resources for science

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Signed:

Recommended by PP&C for approval to Governing Body:

Approved by Governing Body:

Issue status:

Review Date: January 2017