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Marlborough St Mary's CE Primary School



MARLBOROUGH
ST MARY'S
PRIMARY SCHOOL

Science Policy

Together we believe, learn and achieve

This document should be read in conjunction with the following policies and documents:

- National Curriculum for Science
- Early Years Framework
- Teaching and Learning Policy
- Marking, Feedback and Assessment Policy

Rationale

At Marlborough St. Mary's we believe that teaching and learning in Science should stimulate and excite children's curiosity about the world they live in.

Science is taught following the National Curriculum programmes of study and through our creative curriculum. We provide children with first-hand experiences in order to develop enquiring minds, learning how to question and talk about science using the appropriate vocabulary.

Aims

Our curriculum for science aims to ensure all pupils:

- Develop lively, enquiring minds and the ability to question.
- Build on their natural curiosity and enable them to understand and care for the world in which they live.
- Learn scientific skills and knowledge in exciting, stimulating and challenging lessons.
- Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- Develop an understanding of science through different types of enquiry to help answer scientific questions about the world around them.
- Make predictions and safely carry out investigations using a variety of equipment.
- Provide an environment where pupils can work in an investigative way and can communicate their findings in a variety of ways.
- Use observations to sort and measure things.
- Record their findings in drawings, diagrams, writing, sorting charts and keys, tables, charts and graphs.
- Have a working knowledge of science so that they can apply it to their everyday lives and other subject areas.
- Make use of ICT, English and maths skills within enquiries.
- Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

The attitudes we want to foster in children at Marlborough St Mary's are-

- An enthusiasm for science
- Independence and confidence
- Co-operation and collaboration
- Self-motivation
- Curiosity and imagination

Our Curriculum

At Marlborough St Mary's Primary School, we believe that science should, whenever possible, be taught through practical, hands-on investigations and experimentation.

We base our teaching content on the National Curriculum Programmes of Study. We use this in line with our science progression document to inform future planning and ensure a successful coverage of the scientific skills required across the key stages. (See Appendix)

The National Curriculum document for Science sets out clear statutory requirements for all children across the key stages including The Foundation Stage. The programmes of study sets out what should be taught at Key Stage 1 and 2 and The Foundation Stage programmes of study for Understanding of the World are set out in the EYFS.

Organisation

The Foundation Stage

In The Foundation Stage we foster a hands-on curiosity for exploration of the world around us. Lessons are planned in accordance with the Early Years Foundation Stage Framework. Children are encouraged to develop their scientific skills through explorations, by making careful observations to look closely at similarities, differences, patterns and change; through provision of stimulating resources and open-ended questioning.

Key Stage One

The National Curriculum's (2014) principal focus of science teaching in key stage 1 is 'to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them'. 'Working scientifically' is described separately in the programme of study but must always be taught through, and clearly related, to the content in the programme of study.

These are the programmes of study at KS1:

Working Scientifically	
<ul style="list-style-type: none">• asking simple questions and recognising that they can be answered in different ways• observing closely, using simple equipment• performing simple tests• identifying and classifying• using their observations and ideas to suggest answers to questions• gathering and recording data to help in answering questions	
Year 1	Year 2
<ul style="list-style-type: none">• Plants• Animals, including humans• Everyday materials• Seasonal changes	<ul style="list-style-type: none">• Living things and their habitats• Plants• Animals, including humans• Uses of everyday materials

Key Stage Two

The National Curriculum's (2014) principal focus of science teaching in lower key stage 2 is 'to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena.' and within upper key stage 2 is 'to enable pupils to develop a deeper understanding of a wider range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically.' 'Working scientifically' is described separately in the programme of study but must always be taught through, and clearly related, to the content in the programme of study.

These are the programmes of study at Lower KS2:

Working Scientifically	
<ul style="list-style-type: none"> • asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings. 	
Year 3	Year 4
<ul style="list-style-type: none"> • Plants • Animals, including humans • Rocks • Light • Forces and Magnets 	<ul style="list-style-type: none"> • Living things and their habitats • Animals, including humans • States of Matter • Sound • Electricity

These are the programmes of study at Upper KS2:

Working Scientifically	
<ul style="list-style-type: none"> • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments 	
Year 5	Year 6
<ul style="list-style-type: none"> • Living things and their habitats • Animals, including humans • Properties and changes to materials • Earth and Space • Forces 	<ul style="list-style-type: none"> • Living things and their habitats • Animals, including humans • Evolution and Inheritance • Light • Electricity

Planning

The whole school teaches following our two year topic cycle and the science units are carefully planned to match the topic whenever possible. Teachers have the flexibility to put the topics specific to their year group where they feel they will work best within the topic cycle. This helps to ensure continuity and progression and creates opportunities for holistic learning.

As well as covering the key areas of study, the planning will outline how the children will be grouped and the way the work will be recorded. This will be flexible and will also be appropriate to the pupils' age group.

E.g. Organisation – individual, mixed ability pairs, ability pairs, mixed ability groups, ability groups, whole class.

Recording – verbal, pictures, symbols, diagrams, written, graphical, photographs, recordings. Teachers plan both a medium term plan (outlining the topic) and weekly (specific development of skills and knowledge) on a school format. On the weekly lesson plans, the focus 'working scientifically' skill and key knowledge (relevant to the topic taken from the programmes of study) are clearly recorded for each lesson. All lessons have a skills based learning objective.

Teaching

Science is usually taught weekly but there is flexibility as to when it is timetabled and some units may be blocked. This allows for cross curricular links to happen more frequently and can mean that longer periods of time are given for investigations.

How we ensure quality science teaching:

- Our science units are carefully linked to the 2 year topic cycle whenever possible and help to enhance the learning by often creating strong cross curricular links.
- Teachers carefully plan for the unit of work and identify the skills that are a focus for the unit.
- Teachers ensure that children are given frequent opportunities to ask questions and develop enquiries in order for them to answer their questions and become independent learners.
- Teachers share the objective and key skills that they are working towards.
- Teachers have a broad question to stimulate the children's thinking at the beginning of all lessons and to set them off on their chosen enquiry.
- Teachers plan inclusive lessons and differentiate to ensure that all children can access the curriculum, including those with a Special Educational need or an Education and Health Care Plan. They do this in a variety of ways :
 - By asking questions to match different abilities.
 - By outcome - by setting up one task that has a variety of levels associated with it. This could be written or verbal but defined by a given success criteria.
 - By giving differentiated tasks to groups and through the use of extra adult support in the classroom.

Assessment

- Teachers monitor pupil's progress in the area of 'Working Scientifically' by using Assessment for Learning strategies and annotating planning.
- Teachers use the school marking policy to feedback to children; they ask questions to stimulate greater reflection or challenge statements using verbal and written feedback. (method depends on the age of the pupils).

- Assessments are made against both subject knowledge and scientific skills on each lesson plan and are available for the subject leaders to monitor.

Monitoring

- The science subject leader produces a written overview of science once a year, focusing on achievements and areas for development.
- Monitoring activities each year will include: planning and work scrutiny, pupil voice, use of the school tracking system to identify progress.
- The outcomes of all monitoring and evaluation activities will be reported back to all staff and used to inform CPD for staff.

Resources

- Science resources are stored in the staff resource room for KS1. The KS2 equipment has been sorted into broad topic areas and is currently stored in Year 3 Swallowtail, Year 4 Teal, Year 5 Water Vole and Year 6 Heron. All staff have been given an equipment list.
- The subject leaders will carry out an audit of equipment once a year to ensure that we have enough resources to facilitate a class at a time and replenish any out of date materials or broken or damaged equipment.

Health and Safety

- All teachers should be aware of potential hazards when using science equipment in the classroom and discuss these risks with the children. These health and safety issues will be identified on teacher planning.
- Association for Science Education (ASE) advice on health safety document is available on the staff drive.

