



# **SCIENCE POLICY**

**Science Policy for  
St Mary's C.E. School**

**Approved by Curriculum and Standards Committee:  
Date of next review:**

**February 2017  
February 2020**

## **Science Policy**

### **Introduction**

Science is a core subject within the National Curriculum. This policy outlines the purpose, nature and management of Science taught at St Mary's School. It reflects the consensus views of all the teaching staff that are responsible for its implementation.

This policy should be read in conjunction with the New Curriculum (2014) documentation which sets out in detail what pupils will be taught in different year groups as of September 2014.

### **Policy Statement**

***For children, science is the exploration of the world around them through investigation.***

Science is the study of the physical world, involving a collection of facts from observations, physical experiments and working scientifically (Living Processes, Materials, Physical Processes) from which children form ideas of their world.

Science has a heavy emphasis on investigation involving prediction, observation, testing and evaluation.

We believe that it is good practice for children to be encouraged to actively learn, by developing their own investigations based on ideas given by the teacher, and their own ideas. These ideas will be increasingly founded in scientific knowledge and understanding.

### **Aims**

#### **We aim:**

- to develop the natural curiosity of children about the world around them;
- to develop questioning and enquiring minds through a range of enjoyable and interesting experiences;
- to help children develop the skills to make systematic enquiries;
- to provide opportunities for children to apply theoretical ideas to the solving of practical problems;
- to enable children to develop an increasing attention to accuracy;
- to foster a positive attitude to science and increase pupils' understanding of how science is used in the wider world;
- to provide a range of relevant experiences allowing pupils to acquire knowledge, skills and understanding in the key areas of Scientific Enquiry, Life Processes and Living Things, Materials and their Properties, and Physical Processes through a variety of teaching and learning strategies;
- to develop the accurate use of scientific vocabulary;
- to meet the needs of each child so that they will reach their full potential;
- to engender a sense of awe and wonder with Science.

### **The Approach to Investigations**

Each child will plan, take part in and report on an investigation at least once every half term, during each unit of work. The format for these investigations will be progressively systematic. By the end of Key Stage 2, children should be more independent in planning and carrying out these investigations, dependent on ability.

### **Leadership and Management Roles**

The co-ordinator is responsible for:

- understanding the requirements of the subject order;
- preparing policy documents, curriculum plans and Schemes of Work for the subject;
- encouraging staff to provide effective learning opportunities for all pupils
- helping colleagues to develop their subject expertise;
- collecting and auditing resources on both sites;
- ensuring common standards and formats for recording and assessment;
- liaising with teachers of the subject in other phases;
- communicating all developments in the subject, e.g. through staff meetings, distributing information, using notice boards;
- organising and monitoring professional development in the subject;
- producing annual development plans including costings and priorities which can help inform the school development plan;
- liaising with relevant organisations regarding the subject, e.g. advisory teachers, inspectors, QCA, libraries;
- organising and advising on the contribution of a particular subject to other curriculum areas including cross-curricular and extra-curricular ones.

### **Staffing**

The class teacher is responsible for timetabling to ensure that the relevant sections of the Scheme of Work are covered during each half term. Teachers will use a balance of:

- teacher-prepared materials
- published resources
- practical tasks
- visitors, e.g., parents, experts, etc.
- educational visits
- occasional homework tasks - weekly in year 6.

The classroom teacher is also responsible for monitoring the progress of the children in their class and reporting this on an annual basis.

### **Entitlement**

The school's provision for science education is in line with the standing order for Science Education within the National Curriculum. The curriculum is delivered based around Curriculum 2014. The following specific programmes of study must be taught during Key Stages 1 or 2.

- Scientific Enquiry
- Life and Living Processes
- Materials
- Physical Processes
- See (Appendix 1)

At St Mary's School, it is expected that Science is taught for one and a half hours per week in KS1 and two hours per week in KS2.

### **Teaching and Learning**

- We use a variety of teaching and learning styles in Science lessons. Our principal aim is to help 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.
- Children have the opportunity to use a variety of data, such as statistics, graphs, pictures and photographs.
- Children use ICT in Science lessons where it enhances their learning.
- Children take part in discussions and 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.

Pupils will be encouraged to develop the skills of:

• Exploring and observing at first hand using all their senses	• Communicating scientific ideas orally, in writing and diagrammatically
• Raising questions	• Collecting data
• Planning investigations	• Interpreting scientific data
• Predicting	• Fair testing
• Formulating hypotheses	• Explain using scientific knowledge
• Problem solving	• Explaining and using scientific terminology
• Evaluating	• Sorting and ordering
• Estimating	• Drawing conclusions
• Accurate measuring	

## **Planning**

Planning in Years 1 to 6 is based around the QCA scheme of work but as of September 2014 changes to the curriculum will make certain parts of the QCA scheme redundant. Long and medium term planning is based on the QCA science document, which is supplemented by extra material when appropriate. Science is taught as a discrete subject. It has been agreed that our medium term planning will include the vocabulary to be taught in that unit of work, the skills that will be taught, opportunities for assessment and where relevant, differentiated activities on a common theme.

Short term planning is used flexibly to reflect the objective of the lesson, the success criteria and notes of the next lesson.

Science is taught in half termly blocks based on the QCA scheme of work. There will be a degree of flexibility with the structure of the lesson to respond to the needs of the children and the class profile. However, it may consist of an introductory whole class session, differentiated activities and a plenary to draw conclusions. The elements of this lesson may take place at different times during the week. As of September 2014 class teachers will teach Science in 5 blocks across the six half terms with one block used for revision. On occasions, Science may be taught during a Teacher's PPA allowance. However this should be a maximum of one term, ensuring that the class teacher is teaching at least two terms of Science per academic year.

## **Foundation Stage**

We teach science in the reception classes as an integral part of the topic work covered during the year. As the reception class is part of the foundation stage, we relate the scientific aspect of the children's work to the objectives set out in the Early Learning Goals included in Knowledge and Understanding the World.

## **Assessment and Recording**

Assessment is in line with the school's Assessment Policy. Assessment opportunities are included in the study of each unit of work. Assessments should be based on the National Curriculum level descriptors.

Teachers will assess children's work in Science from three aspects (short-term, medium-term and long-term). There will be a strong focus on Assessment for Learning (AFL) and children will be encouraged to assess their own work where appropriate.

### **Formative Assessment (short-term)**

Assessment is carried out informally during the course of teaching. It enables the teacher to identify a child's understanding and progress in particular aspects, to inform their immediate teaching and to plan for their coming lessons. This can take the form of:

- small group discussions in the context of a practical task
- specific assignments for individual children
- individual discussions with children to evaluate progress and to set new targets.

At the beginning of a unit of work, individuals complete concept maps, which summarises

their knowledge and understanding. These concept maps are revisited at the end of the unit and new knowledge and understanding are added.

### **Medium-term assessment**

This is planned into the work as discrete assessment opportunities every half term at the end of each unit. The assessment often takes the form of a short test or task and serves to show the teacher the extent to which learning objectives have been met.

This is used to inform planning future lessons and activities.

### **Summative assessment (long-term)**

Teachers use their own assessment to give each child a Science level at the end of the year. Year 6 have end of key stage testing. This information is recorded in the Pupil Progress folders.

Parents are informed of the pupil's progress during parents meetings and in the end of year reports.

### **Assessment for Learning (AFL)**

Assessment for learning involves using assessment in the classroom to raise pupils' science achievement. It is based on the idea that pupils will improve most if they understand the aim of their learning, where they are in relation to this aim and how they can achieve the aim. Please see the Assessment Policy for further details.

### **Continuity, progression and standards**

Progression is promoted throughout the school by use of the science scheme of work that is located in every classroom and on the shared drive. Please see the Curriculum Policy for further details on this and also inclusion & special needs.

### **Cross-Curricular Links**

As far as possible, the Science curriculum will provide opportunities to establish links with other curriculum areas:

#### **English**

In particular, at Key Stage 1, the pupils are encouraged to use their speaking and listening skills to describe what they see and explain what they are going to do next. At key stage 2 the pupils are encouraged to develop their skills of writing to record their planning, what they observe and what they found out. The children develop their written skills by writing reports in science. Science based texts are sometimes used in English lessons and in guided reading sessions.

#### **Maths**

At both Key Stages the pupils are expected to use their knowledge and understanding of measurement and data handling at appropriate levels. In science, they should be applying their maths skills at levels similar to those, which they are using in their maths work. Mathematical skills such as weighing and measuring are an important part of a Science lesson. Where appropriate, children record their findings using charts, tables and graphs.

#### **Information and communications technology**

At both Key Stages the pupils will use ICT to:

- Locate and research information (CD ROM, internet)

- Record findings (using text, data and tables)
- Gain confidence in using calculators, VCR and tape recorder as well as the computer.

### **Spiritual development**

Spiritual development is encouraged through reminding pupils of the wonder of science and the effect of scientific discoveries on the modern world. Topical scientific issues are also discussed as appropriate.

### **Personal, social and health education**

Health education is taught as part of the units on ourselves, health and growing, teeth and eating, moving and growing, keeping healthy and life cycles. It is also linked to becoming a global citizen.

### **Sustainability**

Sustainability forms an integral and vital part of the science curriculum. Within the scheme of work, individual units naturally lend themselves to developing the children's knowledge, understanding, concern and care for the environment. There are many resources within our school grounds that allow effective teaching of environmental science, including our wildlife area, outdoor classroom and pond area. Children are encouraged to use the wildlife area and outdoor classroom as part of their break and lunch times.

As a result of teaching about the environment, every encouragement is given to the children to apply the principles of energy efficiency, water conservation, waste reduction and recycling and litter control. Recycling is actively encouraged throughout the school and every classroom has notices encouraging this. Additionally, there are many opportunities within science and other areas for children to learn about the choices they have and the impact that they can make on their environment.

### **Equipment and Resources**

The science coordinator carries out an annual audit of the resources and reorders any consumables when necessary. New resources can be purchased through negotiation between class teacher co-ordinator and Head teacher. Currently, there is not an annual Science budget, due to financial restrictions.

The school pond has been unavailable for use, due to building work on the Junior site. However with building work having finished, the pond is currently under reconstruction and will be ready for use across all Key Stages by February half-term 2017.

### **Health and Safety**

The school's Health & Safety Policy outlines the safe codes of practice for our school and provides the necessary guidance on the response and the reporting of all incidents.

Children are encouraged to assess hazards and discuss the appropriate precautions. Children are taught the appropriate safe practice when using equipment. This will include:

- how to use equipment correctly and in accordance with health and safety guidelines
- to behave in a considerate and responsible manner, showing respect for other

people and the environment whilst on trips outside the classroom.

A copy of 'Be Safe' and a set of hazard cards are located in the staff rooms on both school sites. A Risk Assessment will be completed for any educational visit.

### **ICT**

Children use ICT in Science lessons where appropriate. The children have access to the internet to research information about their Science topics. They have access to word processing, spreadsheet and database packages enabling them to present results and findings in a variety of ways. Each classroom is fitted with an interactive whiteboard enabling the teacher to use video clips and demonstration programmes to enrich lessons. All classes in school have timetabled sessions in the ICT suite.

### **E-Safety**

When ICT is used in Science lessons, before every lesson the class teacher will remind children about how to use the internet safely and refer to the poster on display. They will monitor and report e-safety incidents in line with the AUP (Acceptable Use Policy).

### **Science Action Plan**

Annually, a Science Development plan is completed to establish how we can improve the teaching and provisions of Science at St Mary's. This is completed in conjunction with the School Development Plan. A copy can be found on school's G-Drive (Curriculum Shares).

### **Equalities Statement**

St Mary's CE School is committed to valuing diversity and to equality of opportunity. We aim to create and promote an environment in which pupils, parents and staff are treated fairly and with respect, and feel able to contribute to the best of their abilities.

The Governing Body recognises that it is unlawful to take into account anyone's gender, marital status, colour, race, nationality, ethnic or national origin, disability, religious beliefs, age or sexual orientation. Full consideration has been given to this during the formulation of this policy as it is the governors' aim that no-one at St Mary's School should suffer discrimination, either directly or indirectly, or harassment on any of these grounds.

Appendix 1 – Science Curriculum Map

**St. Mary's Science Map 2016**

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Autumn Term 1</b>	Autumn All About Me	Plants	Animals Including Humans	Animals Including Humans	Living Things and Their Habitats	Forces and Magnets	Animals Including Humans
		Seasonal Changes					
<b>Autumn Term 2</b>	Nursery Rhymes	Plants	Living things and their habitats	Plants	States of Matter	All Living Things and Their Habitats	Living Things and Their Habitats
<b>Spring Term 1</b>	Our Wonderful World Spring	Animals Including Humans	Plants	Rocks	Sound	Earth and Space	Electricity
<b>Spring Term 2</b>	Our Wonderful World Spring	Animals Including Humans Seasonal Changes	Plants	Light	Sound/Electricity		Earth and Space
<b>Summer Term 1</b>	Stories	Everyday Materials	Everyday Materials	Forces and Magnets	Electricity	Animals including Humans	Light
<b>Summer Term 2</b>	Journeys	Everyday Materials	Animals Including Humans	Forces and Magnets	Animals Including Humans	Properties and Changes of Materials	Light
		Seasonal Changes					