

Learn. Grow. Achieve. Flourish.

'I instruct you in the way of wisdom and lead you along straight paths.' Proverbs 4:11

Love. Respect. Peace. Wisdom. Responsibility. Honesty. Forgiveness. Resilience. Perseverance.

St Mary's Church of England Primary School



Learn. Grow. Achieve. Flourish.

Science Policy

POLICY: **Science**

APPROVED BY: Headteacher

APPROVED DATE: October 2025

REVIEW DATE: 1.10.2027

This policy is non-statutory and recommended to be reviewed.

School Vision

As a Church of England school, we value and are ambitious for all children and are committed to providing a positive, safe and stimulating environment for them to enjoy and excel in their learning; grow in confidence, resilience and independence; achieve their full potential and flourish as individuals.

***'I instruct you in the way of wisdom and lead you along straight paths'
(Proverbs 4:1)***

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Science Policy

1. Intent: Why do we teach science?

A good science education bestows a powerful way of thinking and reasoning that promotes the ability of individuals to make sense of their world. Science has revolutionised the world we live in and so it is essential that every child is given the opportunity to learn the key aspects of science. At St Marys we want children to be eager scientists, ready to ask questions to further their knowledge and skills. One day a child of ours might become a great scientist who revolutionises the world in which we live!

2. Rationale: What will our children achieve?

With each successive year, children at St Mary's will increasingly become scientists who:

Learn

- To ask questions about the world.
- Develop critical thinking and problem solving skills.
- Understand basic scientific concepts and vocabulary.

Grow

- Show confidence in investigating questions using a range of methods.
- Show an awareness of environmental issues around the world.

Achieve

- Understand and engage with scientific information in everyday life.

Flourish

- Feel inspired to take on science-related careers in the future.

3. Implementation: How do we teach science?

At St Marys we follow the science programme of study from the National Curriculum. The programmes of study describe a sequence of knowledge and concepts; it is important that children develop a deep understanding of these. To ensure we develop the children's knowledge and understanding we make the teaching of science as practical and hands on as possible to ensure a sense of enjoyment in science. Sometimes we do this through whole-class and small group 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.

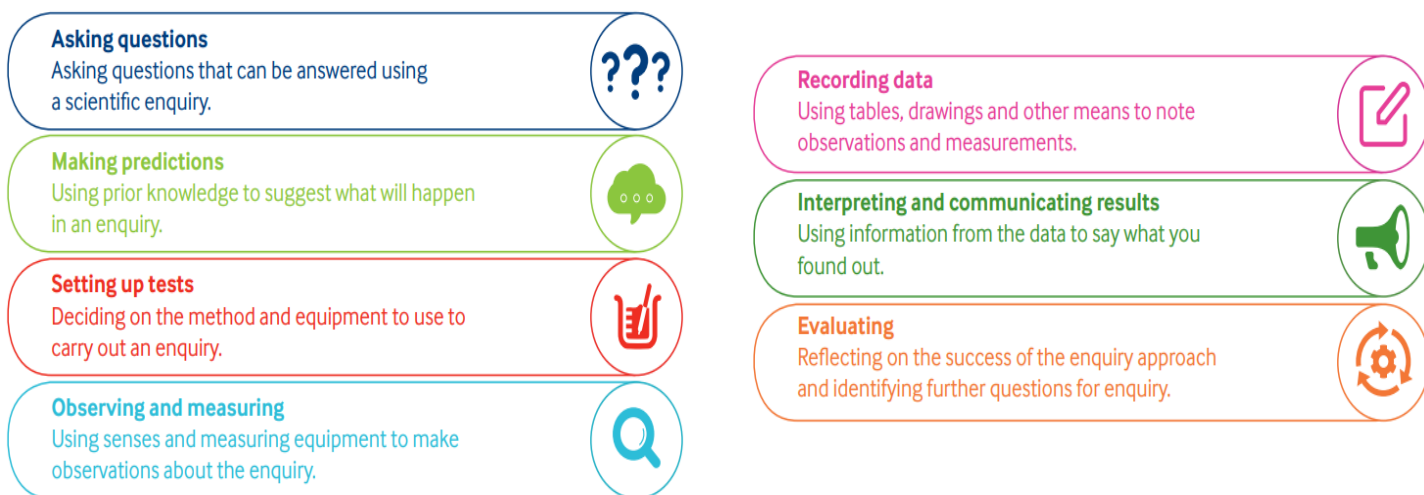
As well as the necessary knowledge and concepts it is important that children understand the methods and processes of science. 'Working scientifically' focuses on the key features of scientific enquiry types of scientific enquiry should include:

- Observing over time

- Pattern seeking
- Identifying
- Classifying and grouping
- Comparative and fair testing (controlled investigations)
- Researching using secondary sources.
- Pupils seek answers to questions through collecting, analysing and presenting data.

Scientific Enquiry Skills

Children will be taught the Working Scientifically skills outlined in the curriculum across the units for the year. These skills build and progress through the year groups, as outlined in our mapping tool. Logos are displayed on every working wall in Years 1-6 to help children to develop their understanding of these when working scientifically. As pupils progress through the school, they are encouraged to carry out the skills independently.



4. Implementation: How do we enrich the science curriculum at St Mary's?

At St Mary's, children have access to a wide range of educational experiences outside of school through trips and in-school workshops. To celebrate science week, we invite a range of visitors, guest speakers and companies in to work with the children.

Year	Autumn	Spring	Summer
Nursery		Zoo Lab (Knowledge and Understanding of the World)	Hershel Park & Black Park (Knowledge and Understanding of the World)
Reception		Living Eggs (Knowledge and Understanding of the World)	
1	Odds Farm (Animals including humans)	Hershel Park (Plants)	Eton College (Seasons)
2	Whipsnade Zoo (Living things and their habitats)		Little Hampton (Living things and their habitats)
3			Kew Gardens (Plants)
4	Hershel Park/Jubilee River (Living things and their habitats)		
5		On site workshop (Earth and Space)	Eton College (Living things and their habitats)
6		The Science Museum (Animals, including Humans)	

5. Implementation: Science mapping tool

The content of our Science Curriculum for Years 1 to 6 is set out in our mapping tool. This document outlines the curriculum objectives for each year group, including both knowledge and working scientifically skills. The Working Scientifically skills are taught across the year, as part of the topical units with each skill being revisited multiple times to develop and practise it in varied applied contexts.

6. Implementation: What science do we teach at St Mary's?

At St Mary's we adhere to the statutory 'Science Programmes of Study: Key Stages 1 and 2 National Curriculum in England - September 2013' and the fundamental knowledge, concepts and skills of science outlined, within a broad, balanced and rich curriculum.

The teaching of science encourages:

- A sense of excitement and curiosity.
- Independent learning through first-hand experience.
- Questioning, experimentation and discussion of the world around them.
- Opportunities for gaining knowledge through developing concrete, practical skills and abstract, creative thinking, engaging children's enthusiasm, awe and wonder.
- The building of key knowledge, understanding and concepts, methods, processes and applications of science.

- Discussion of children’s learning.
- Children to explain what is occurring, predict how things will behave, and analyse causes.

We aim for children to:

- **Learn** to ask questions and be curious about the world in which they live.
- **Grow** and deepen their understanding of key scientific concepts.
- **Achieve** and show confidence in using a range skills to answer questions.
- **Flourish** by engaging in a range of hands-on activities.

Over the course of the year, the following topics are covered:

	Key Stage 1 & 2					
Term	1	2	3	4	5	6
Autumn i	Seasonal Change (ongoing)	Use of Everyday Materials	Rocks and Soils	Animals, Including Humans	Forces	Light
Autumn ii	Animals, including Humans	Animals, Including Humans	Forces and Magnets	Sound		Electricity
Spring i	Animals, including Humans	Living Things and Their Habitats	Animals, Including Humans	Electricity	Earth and Space	Living Things and Their Habitats
Spring ii	Everyday Materials			Living Things and Their Habitats		Living Things and Their Habitats
Summer i	Plants	Animals, Including Humans	Plants	States of Matter	Properties and Changes of Materials	Evolution and Inheritance
Summer ii	Seasonal Change (ongoing)	Plants	Light		Animals, Including Humans	

EYFS

Early Years Foundation Stage - The EYFS provides activities and experiences for children in seven important and inter-connected areas of learning and development. The specific area ‘Understanding the World’ particularly involves guiding children to make sense of their physical world and their community through opportunities to:

- Explore.
- Observe.
- Find out about people, places, technology and the environment.

This is implemented through planned, purposeful play and through a mix of adult-led and child-initiated activity offering the three characteristics of effective teaching and learning:

- Playing and exploring
- Active learning; creating
- Thinking critically.

7. Implementation: What is the progression at St Mary's like?

At St Mary's, we want every pupil to develop a passion for science, ensuring they leave with a secure understanding of the scientific knowledge and skills taught. Our science curriculum is structured in our mapping tool, which outlines:

- The knowledge and working scientifically skills
- How each objective aligns within the learning continuum from Year 1 to Year 6
- Provides opportunities for pupils to revisit prior knowledge whilst acquiring new skills. Additionally
- describes how working scientifically skills will be taught throughout the academic year, with each skill revisited to encourage practice in varied contexts.

8. Implementation: What does a typical lesson look like?

Science is taught for the equivalent of at least 1.5 hours a week in KS1 and 2 hours a week in KS2. This is timetabled through weekly sessions. For consistency, science lessons are structured in the following way:

KS1	
2-3 mins	Introduce lesson.
2-5 mins	Write date and learning intention in book.
10 mins	Flashback 4 (books).
2 mins	Share new learning intention.
5 mins	Discuss Key vocabulary
10 mins	Main input
30 mins	Practical activities
15 mins	Written task
5 mins	Plenary
3-5 mins	Flashback 4 (verbal)
1.5 hours	Total

KS2	
2 mins	Introduce lesson
2 mins	Write date and learning intention in book
5 mins	Flashback 4 (books)
2 mins	Share new learning intention
5 mins	Discuss Key vocabulary. Vocab book.
15-20 mins	Main input
30-45 mins	Practical activities
20-30 mins	Written activity
5 mins	Plenary
3-5 mins	Flashback 4 (verbal)
2 hours	Total

*Timings and order of written/practical activities may vary slightly.

9. Implementation – Assessment

To support accurate assessment and retention of key knowledge, both formative and summative assessments are incorporated into the teaching of science.

Flashback 4

Flashback 4 is used in science to support children's memorisation of the key subject (sticky) knowledge outlined in the science subject mapping tool. It supports pupils in their retention of prior knowledge in a pacy manner. **Where gaps have been identified, class teachers continue to design and incorporate question prompts in subsequent flashback 4s for the purpose of consolidation.** The 4 questions are structured in the following ways:

Question number	Area of assessment
1	Sticky knowledge from the previous year
2	Sticky knowledge from the previous term
3	Sticky knowledge from the previous lesson
4	Vocabulary check

Vocabulary books

These are used to support re-call of key vocabulary. Subject specific vocabulary for geography is recorded with a short definition.

Summative Assessment

At the end of every topic, children in Years 1-6 complete a short test, which is designed to assess their knowledge and understanding of the science objectives taught. This is also used as an opportunity to check children's understanding of key scientific vocabulary. Teachers use this information to identify and address misconceptions in subsequent lessons.

10. Implementation: Subject leader

To support the successful implementation of the science curriculum, the subject lead undertakes the following:

Curriculum

- Develop and oversee the implementation of the science curriculum that aligns with the National Curriculum objectives.
- Ensure that staff are familiar with the science mapping tool.
- Ensure that science is taught weekly.

Teaching and Learning

- Model good practice and lead by example.
- Secure high standards of teaching and learning.
- Monitor and evaluate the effectiveness of teaching and learning.
- Raise standards of pupils' achievement at all levels.
- Support staff with the teaching of science and share CPD.

11. Implementation: Class teacher

To support the successful implementation of the science curriculum, class teachers undertake the following:

- Refer to the science mapping tool to ensure that learning intentions, learning tasks and the recording of work meets the expectations outlined.
- For consistency, follow the lesson structure outlined by the science lead.
- Use suggested website links to improve subject knowledge and where possible, attend external CPD recommended by science lead.
- Ensure working walls reflect current science topics and are updated regularly.
- Plan external visits in advance, including liaising with other staff and parent volunteers to assist in supervision when such learning takes place offsite.
- Ensure that a risk assessment and trip arrangements form is completed and submitted to the relevant member of the senior management team.
- Mark children's recorded evidence of learning. Where practical work has been undertaken, ensure photographic evidence is recorded and placed in science books.
- Provide children with targeted opportunities to build their knowledge of science through homework – for example in the Curriculum Project Bingo (Refer to the Homework Policy).
- Ensure both summative and formative assessment takes place for science in line with the Science Policy.
- Implement the provision of the school's science curriculum in alignment with the Walkthrus teaching styles.

12. Inclusion

Science must be accessible to all children. At St Mary's, teachers recognise the importance of identifying and addressing the needs of both individual children and groups. This is done by adapting planning, teaching methods and resources accordingly.

A range of strategies are used to support pupils with their understanding of science:

- Hands on experiences.
- Use of scaffolds to support writing.
- Sentence stems.
- Pre-teaching (key vocabulary & key concepts).
- Small group interventions.
- Visual aids (pictures, diagrams, videos).
- Parental involvement (homework learning tasks).

13. Knowledge Organisers

Each unit's content will be summarised on a Knowledge Organiser, with the aim of:

- Providing children with the 'bigger picture' of a topic.
- Teaching essential knowledge about a topic or concept.

- Teaching key vocabulary associated with a topic or concept.
- Encouraging children to make links to previous learning.
- Serving as a tool for retrieval practice, helping children to improve their long-term memory.

14. Learning Environment

To support children in their learning and promote independence, all classrooms have a science working wall, which teaching staff are encouraged to refer to during lessons. All working walls reflect the current topic and include:

- Learning intentions
- Key vocabulary
- Visuals, models and practical resources to support the unit of work
- Children's ideas and/or work
- Questions related to the learning

15. Resources

- Resources are stored centrally and are easily accessible to all staff.
- Each topic's resources are organised in clearly labelled boxes.
- Regular audits are conducted to ensure all areas of science are fully resourced.
- A range of stories and non-fiction texts related to each topic are stored in classrooms. These help to support children's understanding of science by providing context and foster a love for both reading and science.

16. Safety

- Staff and pupils must be aware of and note any potential hazards to minimise risks.
- Children must be given appropriate health and safety teaching and be shown how to work safely.
- Teachers must model how to use equipment safely and sensibly.
- Children must be encouraged from an early age to adopt correct and safe practice, particularly when carrying out practical activities.
- Staff are encouraged to seek further advice from the Science Lead and Risk Assessment Lead.

17. Linked Policies

- Homework Policy
- Learning and Teaching Policy
- Assessment Policy
- Feedback and Marking Policy

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18. Appendix

Scientific Enquiry Skills

Asking questions

Asking questions that can be answered using a scientific enquiry.



Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.



Recording data

Using tables, drawings and other means to note observations and measurements.



Interpreting and communicating results

Using information from the data to say what you found out.



Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.



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1	Odds Farm (Animals including humans)	Hershel Park (Plants)	Eton College (Seasons)
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3			Kew Gardens (Plants)
4	Hershel Park/Jubilee River (Living things and their habitats)		
5		On site workshop (Earth and Space)	Eton College (Living things and their habitats)
6		The Science Museum (Animals, including Humans)	

Science Coverage

Key Stage 1 & 2						
Term	1	2	3	4	5	6
Autumn i	Seasonal Change (ongoing)	Use of Everyday Materials	Rocks and Soils	Animals, Including Humans	Forces	Light
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Spring i	Animals, including Humans	Living Things and Their Habitats	Animals, Including Humans	Electricity		
Spring ii	Everyday Materials	Animals, Including Humans	Plants	Living Things and Their Habitats	Living Things and Their Habitats	Animals, including Humans
Summer i	Plants			Animals, Including Humans	States of Matter	Properties and Changes of Materials
Summer ii	Seasonal Change (ongoing)	Plants	Light	Animals, Including Humans		

Suggested Lesson Structure

KS2	
2 mins	Introduce lesson
2 mins	Write date and learning intention in book
5 mins	Flashback 4 (books)
2 mins	Share new learning intention
5 mins	Discuss Key vocabulary. Vocab book.
15-20 mins	Main input
30-45 mins	Practical activities
20-30 mins	Written activity
5 mins	Plenary
3-5 mins	Flashback 4 (verbal)
2 hours	Total

KS1	
2-3 mins	Introduce lesson.
2-5 mins	Write date and learning intention in book.
10 mins	Flashback 4 (books).
2 mins	Share new learning intention.
5 mins	Discuss Key vocabulary
10 mins	Main input
30 mins	Practical activities
15 mins	Written task
5 mins	Plenary
3-5 mins	Flashback 4 (verbal)
1.5 hours	Total

*Timings and order of written/practical activities may vary slightly.

To be read with:

Learning and Teaching Policy, Feedback, Marking and Assessment Policy, Curriculum Policy

Written by: **Nicola Williams**

Date: **28.4.25**

The governing body approved this policy on (date):

Signed:

Chair of Governors

Date:

Signed:

Headteacher

Date:

Review

This policy will be reviewed biennially or when new curriculum requirements are expected.

Review due by: