# Science at St Mary's

**Together we love, learn and flourish**

*'Let all you do be done with love' 1 Corinthians 16:14*

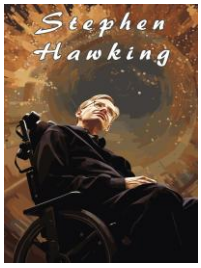
## Our vision for Science

We strive to cultivate a learning environment where every child is empowered to explore science with **curiosity, courage**, and **compassion**. We nurture understanding through our encouragement for them to have a sense of awe and wonder about the world around them and follow their own lines of enquiry.

We want our children to develop a deep **curiosity** about how things work, to question why things happen, and to make meaningful connections through critical thinking. We encourage them to approach new scientific ideas with **courage**, confidently experimenting, investigating, and challenging themselves as they grow in their understanding.We want our children to have **compassion** for themselves, for others, and for the planet. Our curriculum helps children understand how science impacts society and the environment, inspiring them to think ethically about how scientific knowledge can be used to benefit future generations.

## Inspiring our children

Children will be encouraged to learn about inspirational scientists who have pioneered change and made discoveries that have transformed our understanding of the world. They will explore the lives and work of a diverse range of scientists, such as Mary Anning, known for her significant fossil discoveries despite facing adversity, and Stephen Hawking, who made groundbreaking contributions to theoretical physics while living with a disability.




## How is science taught at St Mary's?

At St Mary's C of E Primary School, our science curriculum is designed to spark excitement and curiosity, while developing both scientific knowledge and skills through open-ended questions and hands-on investigations. Our curriculum is carefully weighted with equal importance given to both substantive knowledge (the scientific facts and concepts that explain how the world works) and disciplinary knowledge (understanding how scientists work and how they draw conclusions from evidence).Our curriculum is carefully sequenced, ensuring that new learning builds on what has been previously taught. Review and retrieval are integral to every lesson, with regular quick quizzes used to reinforce learning. By consistently building on children's prior knowledge and experiences, we help them to know more and remember more. This strengthens their understanding of scientific concepts, processes, and methods, and supports them in becoming confident, capable scientific thinkers.

**LONG TERM PLAN**

| Year groups | Cycle | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
|---|---|---|---|---|---|---|---|
| EYFS | A | Seasons | Materials | animals | Human Lifecyle/ healthy lifestyle | Plants | Animals and habitat |
| | B | Seasons | Materials | animals | Human Lifecyle/ healthy lifestyle | Plants | Animals and habitat |
| Year 1&2 | A | Seasonal changes | Animals | Materials | Materials | Animals and habitats | Animals and habitats |
| | B | Body and lifecycles | Hygiene and health | Polar opposites ( sustainability) | Polar opposites ( sustainability) | Plants | Plants |

**LONG TERM PLAN**

| Year groups | Cycle | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
|---|---|---|---|---|---|---|---|
| Year 3&4 | A | Animals: teeth and digestion | Skeletons and muscles and how the diet supports health | Rocks and soils | Light and shadows | Habitats | Food chains and food webs |
| | B | Electricity | Forces and magnets | States of matter | States of matter | Sound | Flowering plant |
| Year 5&6 | A | Human body | Light and electricity | Properties and changes of materials | Properties and changes of materials | Forces | Forces |
| | B | Materials and change: Separation, dissolving and evaporation | Materials | Earth, Moon and Sun | Evolution and inheritance | Habitats, food chains and webs | lifecycles |

A long-term plan provides an overview of the different units that are taught across school which are revisited and built upon each term. Science is taught weekly in key stage 1 and 2, and as part of 'understanding the world' in EYFS.

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## Working scientifically

We teach children scientific skills through the areas below.


Asking questions is at the heart of our science curriculum. We encourage children to go beyond surface-level understanding by asking thoughtful, **curious** questions that push the boundaries of what is already known. Key scientists are used as role models to inspire innovation and creative thinking. Through questioning, we build meaningful discussions that lead to research questions children can explore through practical investigations. During these investigations, children engage in careful observation, learning to think critically, identify patterns, and make connections between different scientific phenomena. They learn to track changes, as well as compare similarities and differences. Fair testing is introduced to teach the importance of controlling variables to ensure accurate and reliable results. These hands-on, investigative approaches allow children to build their scientific enquiry skills progressively and purposefully. When it comes to recording and presenting data, children are taught how to gather, classify, and display information in a range of formats such as tally charts, bar charts, and tables. This enables them to draw meaningful conclusions and reflect on their findings with increasing independence and confidence.

### Modelling :

When learning a new concept, children will be provided with different ways to see this new learning. Teachers will provide children with a variation to the procedure or to the concept. This might be showing a different way to approach the learning or use the same idea with a different problem. This allows children to become fluent and accurate. Concepts will be presented to children in different ways.

### Concept cartoons:

Concept Cartoons are cartoon-style illustrations that present a range of viewpoints or ideas about a scientific concept. Where possible, they are used to challenge misconceptions and provide opportunities for discussion, reasoning, and critical thinking. These visual prompts encourage children to consider different perspectives, justify their thinking, and engage more deeply with scientific ideas.



### School community and outside areas:

St Mary's is located next to Sherwood Forest and benefits from having its own Forest School, providing rich opportunities for outdoor learning and practical scientific investigations. This natural setting allows children to explore concepts such as shadows and how they change, habitats, rocks and soils, and seasonal changes through hands-on experiences that bring science to life.