

We follow the Programmes of Study found within the Science National Curriculum and our teaching and learning in this subject is built around these three key aims:

- 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

Our yearly overview shows the teaching sequence of key blocks for each year group.

Sequences of lessons are carefully planned to build on prior knowledge.

Our detailed long term overview includes prior knowledge children should know, sticky knowledge, key vocabulary and links to key scientists. Teachers carefully plan to ensure gaps are addressed.

St Mary's Primary School Progression in Science						
Term/Year	1	2	3	4	5	6
1	Using our Senses (Animals including humans) Biology	Everyday materials Chemistry Seasonal Changes Physics	Everyday materials Chemistry Seasonal Changes Physics	Plants Biology	Plants Biology	Looking at animals (Animals including humans) Biology
Weather and seasonal changes taught throughout the year. Plants considered throughout the year to observe changes and aid identification.						
2	Living things and their habitats Biology	Living things and their habitats Biology	Use of Everyday Materials Chemistry (properties and uses of materials statement)	Uses of everyday Materials Chemistry (Changing shapes of materials statement)	Animals, including Humans Biology	Plants Biology
Plants considered throughout the year to observe changes. Animals visible in a habitat will change depending on the weather on the day and the season. In order to build up a full picture of the animals in a habitat, the habitat should be visited at different times throughout the year.						
3	Forces and Magnets Physics	Animals, including Humans - nutrition Biology	Animals, including Humans - movement Biology Focus on Investigations	Rocks Chemistry	Light Physics	Plants Biology Make links to rocks and light topic
Plants (gathering evidence of life cycles)						
4 and 5	Earth and Space Physics	Living things and their habitat - Biology	Forces Physics	Properties and changes of materials Chemistry Focus on properties of materials	Properties and changes of materials Chemistry Focus on changes of materials	Animals, including Humans Biology
Plants (gathering evidence of life cycles)						
6	Electricity Physics	Living things and their habitats Biology	Evolution and inheritance Biology	Evolution and inheritance Biology Focus on Investigations	Light Physics	Animals, including Humans Biology

During term 4 the whole school takes part in science week as part of British science week. We also carry out a whole school science investigation once a year.

### Science at St Mary's is taught through weekly lessons.

We teach activities that match the objectives listed in the National Curriculum's Statutory Requirements.

Ideas for these activities might come from:

1. The 'Notes and guidance (non-statutory)' section for that key block within the Programmes of Study
2. The BBC Bitesize and/or BBC Teach
3. TAPS
4. Plan
5. Other appropriate resources located elsewhere

Our aim is to provide activities which encourage deep independent thought and purposeful explanation.

**SCIENCE QUADRANT QUIZ Y6 - TERM FIVE - LIGHT**

Draw four arrows on the diagram to show the direction light travels for the dentist to see Ian's teeth.

Explain what would happen to this shadow if the person moved their hands closer to the light source. Why would this happen?

Some children place a light sensor in the middle of the classroom. The graph below shows how the light level changed over time. Describe one thing that could have happened in the classroom at an attempt to make the light level suddenly change.

Use your knowledge of how light travels to explain why the driver of a vehicle might need to adjust the position of their rear-view mirror.

### Lesson structure

We believe that it is vital we provide opportunities to revisit and recap essential knowledge from previous key blocks. Every lesson begins with a quick retrieval of prior learning. Questions for these might come from the long-term plan, Explorify, BBC Bitesize, quizziz.com or the teachers own ideas. We also use regular quadrant quizzes which have been created for all year groups.

New learning follows the retrieval and this forms the main part of the lesson. Lessons finish with a form of quiz to check understanding of the days learning.

### St Mary's Primary School, Timsbury – Knowledge Organiser

Science	Year 1	Biology	Animals, including humans
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What should I already know?  
Use all their senses in hands-on exploration of natural materials.  
Name and describe people who are familiar to them.

**Key Knowledge**

Humans have five senses:

- sight
- hearing
- smell
- touch
- taste

We use different body parts for our senses.

We see by using our eyes.

We hear by using our ears.

We smell by using our nose.

We touch using our skin (usually our hands).

We taste by putting things in our mouth.

Our tongue is covered in taste buds.

We have similarities and differences with other animals.

**Key Vocabulary**

senses	sight	touch	hearing	body	body parts
smell	taste	feel	brain	human	skeleton

St Mary's has its own Knowledge Organiser for each key block within the Programmes of Study. These are used as title pages in Science books and are referred to throughout units of work and to support recall.

The planned sequence of lessons needs to provide opportunities for the pupils to cover all of this essential key knowledge. Our planned lessons also aim to:

- ensure pupils are familiar with, and can use, technical terminology accurately and precisely, and can build up an extended specialist vocabulary.
- allow pupils to apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data.
- be taught within the wider school curriculum, using different contexts to maximise pupils' engagement with and motivation to study science.

We teach pupils to know about the unique processes of enquiry in science. Our 'Big Ideas' for Working Scientifically (disciplinary content) are:



Investigation logos are used throughout the school. We have progressive formats for recording investigations when working scientifically.

We also use planning boards to enable fair testing and independence.



Every class has a science working wall with key vocabulary, the enquiry types, our investigation logos and current learning.



### Assessment

At the start of each unit teachers elicit pupils current knowledge, they also find out what pupils want to learn more about to tailor the learning.

At the end of each unit pupils complete a summative Head Start assessment. This gives a standardised score.

Working scientifically skills are assessed throughout the unit and by using the TAPS focussed assessment plans.

The teaching sequence for each term's key block finishes with the completion of the Midsomer Norton Schools Partnership's End of Unit Task

Several lessons within the planned sequence will cover key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions.

Ideas for these lessons focusing on scientific enquiry could come from our enquiry overview, TAPS assessment, PLAN resources.

Predictions / Hypotheses		Method	
Question		Date: _/ _/ _	Observations
Conclusions		Results	
		Object dropped	Depth of crater
			Diameter of crater

Teachers provide regular feedback for pupils and give them opportunities to respond with their Purple Pen of Progress. We believe it essential that pupils address any misconceptions and that they correct mistakes in the spelling of key scientific vocabulary.

Our school organises special events for our pupils to take part in and we promote science capital throughout the year. Some ways we do this include;

- Trips such as we the curious
- Visitors (dentists, vets, astronomers)
- Whole school events (National Tree Week, British Science Week, Great Science Share)
- Links with other schools
- After school clubs



Our science curriculum is enriched with outdoor learning links. Each class has 3 terms of Outdoor Learning every year.