



Intent

Excellence

At St Thomas' we deliver an ambitious, knowledge-based Science curriculum that aims to inspire pupils' curiosity and equip them with the foundations for understanding the world through a scientific lens. Pupils will be encouraged to use the knowledge they learn in Science and apply it to investigations that test a theory or set out to answer a question. Excellence is displayed through our Science curriculum through the high standards of teaching and learning. Staff are equipped with specific subject knowledge to teach quality Science lessons.

Experiences and Life Skills

Science enriches children's learning and enables them to create a sense of awe and wonder about the world around them. Through many scientific activities and experiments, children have the opportunity to practice vital skills such as: gather information, record data, graph data and interpret their findings. These are essential skills that pupils will apply to new contexts as they work through the curriculum.

Celebrate Diversity

Children will learn about influential scientists during their time at St Thomas'. Each year group will study one key scientist in depth and discover the work of many more through a variety of scientific topics. We believe it is important that children discover the work of scientists in history and modern day and of different cultures and gender.

Christian Values

Our vision statement, 'Let your Light Shine', reflects our belief that every child is uniquely created and deeply valued as part of God's creation. Through our Lighthouse Curriculum, we aim to nurture, support and inspire each pupil so that they can discover their God-given gifts, develop their individuality and flourish in their learning, actions and relationships.



As a Church of England school, our Christian vision and values underpin all areas of the curriculum, including

'Let your light shine' Matthew 5:16



Science. Through the teaching of Science, pupils are encouraged to develop a sense of awe, wonder and respect for the natural world as part of God's creation. Learning opportunities enable children to explore and understand the world around them while reflecting on their responsibility to care for it.

Pupils are encouraged to consider local/global environmental issues and to recognise how their choices and actions can contribute to caring for the Earth. This supports the development of stewardship, responsibility and respect for creation. Within Science lessons, children are also encouraged to work collaboratively, share resources thoughtfully and demonstrate responsibility in their learning, reflecting our commitment to living out our Christian values in everyday practice.

Reading and Vocabulary

Reading and vocabulary is at the heart of all subjects at St Thomas'. Science lessons follow a structure that allows time for explicitly teaching new vocabulary (STAR words) at the beginning of every lesson. They will be challenged to learn the meaning of these words and apply them correctly during the lesson. Teachers will provide children with actions to match most of these words, to support the children in remembering and using the newly learnt vocabulary. This is something that we use from EYFS and expose children to scientific language from the start of their school life.

In all lessons, our children will read. This can be incorporated into any aspect of the lesson. Children will read a range of texts, from information texts to online glossaries and blogs.

Knowledge Rich and Academic

The science curriculum builds upon knowledge incrementally in a carefully sequenced curriculum, with opportunities to make links within and across year groups and in other subject areas. Pupils will develop an understanding of key substantive concepts (the human body, plants, classification, properties, materials, forces and habitats) that act as threads throughout our progressive science curriculum from the beginning to the end of the pupils' primary education.

At St Thomas', we deliver a science curriculum that goes beyond the expectations of the National Curriculum in some year groups. Examples of this include: teaching 'Astronomy' and 'Electricity' in Year Two and 'Meteorology' in Year Five. In doing this, we believe that gives children a good foundation for their learning as they move through school and provides them with the opportunity to deepen their knowledge in KS2.

Expectations

- **Timetabling Science** – Science is taught for one full afternoon each week in Key stage One and Key Stage two. Science is taught as a core subject and is included in retrieval tasks and sticky knowledge assessment practice on a weekly basis.
- **Structure of lesson:**

Retrieval:

All children will take part in a short task where they will be required to retrieve previously gained knowledge. The

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children may have acquired this knowledge in a previous lesson, unit of work or even a previous year group. This task is designed to strengthen all our pupils' memories of key knowledge, enabling them to permanently remember and make progress across the curriculum.

Vocabulary:

All children will be introduced to key vocabulary (STAR words) at the beginning of every lesson. They will be challenged to learn the meaning of these words and apply them correctly during the lesson. Teachers will provide children with actions to match each of these words, to support the children in remembering them.

Teach:

The teacher will share the core knowledge for the lesson with the children. This is an opportunity for children to listen to and understand the new information.

Partner Talk:

Children will work with a partner to complete a short task or discuss new information. Children will be expected to apply their understanding of the new information taught (they may even use the STAR words).

Independent/Group Task:

The children will sometimes work independently on a task or as part of a small group. These tasks may vary between the labelling and explaining of a Science concept, planning of investigations, the write up of results from these investigations or the practical task itself. These tasks may require the children to apply everything they have learned or apply their newly acquired skills.

Read!

In all lessons, our children will read. This can be incorporated into any aspect of the lesson. Children will read a range of texts, from fiction texts, information texts to online glossaries and blogs. We believe reading is the key to all learning, so have made reading a priority in lessons.

- **Use of resources** – Science lead and class teachers are to ensure that they have all of the required resources to teach every lesson. This may include: quality resources, equipment or teacher knowledge textbooks. Teachers to discuss with science lead if any extra resources are required.
- **Reading** – It is the teachers' responsibility to source a range of quality texts around the current unit. These may be referred to in the lesson or in the learning environment for children to access independently. These text choices should be annotated on planning or knowledge overview for each year group.
- **Books** – All lessons are to have a printed label including: date, knowledge objective (substantive knowledge) and disciplinary knowledge ('Thinking like a Scientist'). Retrieval tasks are to be completed and stuck under lesson title when necessary. Teachers should have high expectations of presentation.
- **Assessment** – Assessment of science should continuously be used to inform teaching. Retrieval tasks should be used to address gaps in pupils' knowledge. Teachers should assess children on knowledge goals after every lesson (a tick against each goal if a child has achieved). If a child has achieved a Step for Depth, teacher should mark with two ticks.
- **Whiteboard** – All STAR words are to be displayed on the interactive whiteboard, along with those from previous lessons, and any other key information. This key information should be referred to in lessons and pupils should use them to aid learning.

Impact

By the end of KS1, our pupils will:

- Ask simple questions and recognise that they can be answered in different ways
- Observe closely, using simple equipment
- Perform simple tests
- Identify and classify
- Use observations and ideas to suggest answers to questions
- Gather and record data to help answer questions
- Be able to identify, name, label and draw the basic parts of the human body (Y1)
- Be able to identify which part of the body is associated with each sense (Y1)
- Understand what an animal is and how animals can be grouped by their features and what they eat (Y1)
- Know that our bodies, including our muscles and bones, need exercise to stay healthy (Y2)
- Know our digestive system takes nutrients from food to help us stay healthy. (Y2)
- Know that keeping clean stops germs from spreading and keeps us healthy. (Y2)
- Know what a habitat is and how animals and plants are adapted to living in them (Y2)

By the end of KS2, our pupils will:

- Ask relevant questions and use different types of scientific enquiries to answer them.
- Be able to set up simple practical enquiries, comparative and fair tests.
- Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
- Gather, record, classify and present data in a variety of ways to help in answering questions.
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- Identify differences, similarities or changes related to simple scientific ideas and processes.
- Use straightforward scientific evidence to answer questions or to support their findings.
- Will be able to describe one of the many systems in our body. (Y3)
- Know that there are cycles in nature (Y3)
- Will be able to design a balanced meal and explain digestion (Y4)
- Know that plants and animals can be classified according to characteristics (y4)
- Know that materials have properties that include solubility. To know how to separate mixtures and that changes are reversible or irreversible (Y5)
- Will understand that the blood circulates throughout the body, gaining oxygen in the lungs and that it is the heart that pumps the blood around (Y5)
- Be able to classify animals based on specific characteristics and give reasons. (Y6)