St. Matthew's C of E Primary School Policies

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Our Policy:

Science

Approval Date:

Review Date:

SCIENCE CURRICULUM POLICY

St. Matthew's Church of England Primary School fosters a caring environment where we come together as a loving family to share, learn, pray, and flourish. Our school's ethos is underpinned by our four key Christian Values: respect, friendship, love, and creativity. We firmly believe that these values empower every member of our community to thrive.

Our children engage in a supportive and purposeful curriculum closely aligned with national curriculum objectives, promoting our overarching vision: *"Let all that you do be done in love*." (1 Corinthians 16:14)

INTENT

Through science, our lives are changed for the better. We believe that all pupils should be taught about the role that science plays in positive advancements, as well as scientific knowledge, methods and processes. Advances in science are continuing to transform our world at lightning speed and we need to do our best to prepare our pupils for a future we can only imagine.

At St Matthew's Primary School, our intention for the science curriculum is to encourage our children to consolidate and deepen their understanding of both knowledge and skills-based concepts within science and inspire them to become curious and inquisitive thinkers. We aim to foster confidence in our students to think critically, ask scientific questions and choose appropriate enquiries to answer them.

Through our scheme of work (White Rose), we aim to build stamina and resilience in our children when working scientifically. At St Matthew's we believe:

- Science motivates pupils to explore the world around them to change it for the better.
- Science encourages pupils to ask 'how' and 'why' questions, with the aim of predicting outcomes and finding out answers.
- Our science lessons are rich in vocabulary and children are encouraged to use scientific vocabulary when discussing any findings and explaining their ideas.
- Children are encouraged to reflect on their learning, ask new questions and think of ways to improve investigations.
- Science learning is contextualised so that children can make connections with 'real life'.

Our science scheme enables pupils to meet the end of Key stage attainment targets in the National Curriculum and the aims also align with those set out in the National Curriculum.

For EYFS, the activities allow pupils to work towards the Understanding the World Development Matters statements and Early Learning Goals, while also covering foundational knowledge that will support them in their future science learning in Key Stage 1.

IMPLEMENTATION

At St Matthew's, we follow the White Rose Science scheme which provides practical approaches to science in an engaging and logical way. The White Rose Science schemes of learning cover all areas of the National Curriculum in England from Reception through to Year 6. Each objective is broken down in small steps which isolate what the children should think about. The scheme progressively builds knowledge and skills over the year and provides a narrow focus to learning. Practical ideas are provided for each step to enhance and extend the learning outcomes.

In each step of our curriculum, practical ideas are integrated to encourage children to consolidate and deepen their understanding of both knowledge and skills-based concepts. These practical ideas are complemented by accompanying worksheets specifically designed to offer additional, adaptable opportunities for reinforcing learning associated with the small-step approach.

Moreover, each block includes an enquiry question selected from one of the 5 enquiry types, further enriching children's understanding of the scientific enquiry process.

Substantive and disciplinary knowledge

The science curriculum meticulously maps out the progression of both scientific knowledge and working scientifically skills (substantive and disciplinary knowledge) throughout the academic year. This strategic alignment ensures that the knowledge and skills are tailored to each year group, and the small-step approach guarantees sufficient coverage and time for effective teaching and consolidation of these essential skills. Each small-step is accompanied by a National Curriculum link, indicating the covered substantive knowledge and the disciplinary skill.

The science curriculum in small steps

The essential elements of primary science are delivered in easily digestible chunks.
Through experiment, practice and discussion, children gain core knowledge around:

- Scientific vocabulary
- 'Working scientifically' skills including systematic and careful observations and following practical scientific methods
- The gathering and interpretation of straightforward scientific evidence
- The use of everyday materials and scientific equipment to solve science problems
- Articulating scientific concepts and using five types of science enquiries

ADAPTATIVE TEACHING

Leaders within school ensure the highest ambition for all pupils and create opportunities to experience success. Drawing from research by Mould (2020) from the Education Endowment Foundation, educators are encouraged to employ various teaching strategies to support pupils' learning. These strategies include: scaffolding, explicit instruction, cognitive and metacognitive approaches, flexible groupings and the integration of technology into the learning process.

LONG TERM MEMORY

Learning is a long-term process and teachers utilise four main strategies to support pupils in being successful and confident learners.

The agreed strategies are:

- New content in small, manageable steps.
- Images to support new learning.
- Spaced retrieval practice.
- New vocabulary is highlighted at the start of lessons and referred to through the teaching in the lesson.
- Displays showcase up-to-date learning including any vocabulary.
- When appropriate, children are encouraged to revisit previous learning in other ways such as quizzes and vocabulary games to further embed their learning.

TEACHING AND LEARNING MODEL

Teachers are responsible for effectively balancing the introduction of new scientific content to enable pupils to grasp important concepts successfully. At St. Matthew's, we employ a 5-part teaching model that guarantees a thorough impartation of scientific knowledge. These principles and strategies contribute to a vibrant and captivating science curriculum, enabling our children to develop a secure understanding of scientific concepts and skills nurturing a passion for learning and exploring the world around them.

Activate- teachers activate the appropriate schema and make long term links to learning that occurred in the past.

Vocabulary – teachers explicitly teach vocabulary that pupils need a deep understanding of to support their learning.

Retrieve – pupils complete a retrieval task relating to more recent learning such as self-testing key information from their knowledge organisers.

Teach – The teacher presents new information clearly and in manageable chunks.

Apply – pupils apply their learning by demonstrating their skills gained.

ASSESSMENT

Teachers use formal assessments, as well as regular ongoing teacher assessments, to adapt their planning to meet the needs of all pupils appropriately. End-of-unit attainment is tracked using Insight Tracking system so that leaders can ensure pupils are making at least good progress throughout their learning.

White Rose science scheme can be continuously monitored through both formative and summative assessment opportunities. Each lesson includes guidance to assist teachers in assessing pupils against the learning objectives and highlights potential misconceptions.

IMPACT

Following the implementation of White Rose Science, pupils should leave school equipped with a variety of skills to enable them to succeed in their secondary education. They will be inquisitive learners who ask questions and can propose how to answer the questions using the scientific enquiries. They will be critical and analytical thinkers who can make informed and balanced judgments based on evidence.

The key to the success of White Rose Science is our small steps approach. We break down the essential aspects of key stage science into easily digestible chunks.

Through experiment, practice and discussion, children gain core knowledge around:

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- The gathering and interpretation of straightforward scientific evidence
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REVIEW

This policy will be reviewed annually by the Headteacher, Subject Leader and staff.

Date of Policy:	September 2024
Date agreed by Governors:	
Next Review Date:	September 2025