ST. THOMAS OF CANTERBURY C OF E PRIMARY SCHOOL

"Let all that you do be done in love" 1 Corinthians 16:14

Science Policy

Date of Amendment: November 2023

Review Date: November 2026

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Science Policy

Our Vision

Through a positive caring Christian environment, we provide the opportunity for every child to reach their full potential. We embrace Christian values, embedding them into curriculum teaching, and ensure all children are ready for their next steps and are able to make a positive contribution to their community.

Introduction

Science is a systematic investigation of the physical, chemical and biological aspects of the world which relies on first-hand experiences and on other sources of information. The scientific process and pupils' problem-solving skills will be used to deepen their understanding of the concepts involved. The main aspects of science to be studied will be determined by the programmes of study of the National Curriculum 2014.

Through science, pupils at St Thomas of Canterbury Church of England Primary School will deepen their respect, care and appreciation for the natural world and all its phenomena.

Intent

- to develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life
- to build on pupils' curiosity and sense of awe of the natural world
- to use a planned range of practical investigations to give pupils a greater understanding of the concepts and knowledge of science as well as scientific method
- to introduce pupils to the language and vocabulary of science
- to develop pupils' basic practical skills and their ability to make accurate and appropriate measurements
- to develop pupils' use of technology in their science studies.
- to extend the learning environment for our pupils via our environmental areas and the locality
- to promote a 'healthy lifestyle' in our pupils.

Objectives

The following objectives form the basis of our decisions when planning a scheme of work. Assessment will also be related to these objectives:

To develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life:

- to develop a knowledge and appreciation of the contribution made by famous scientists to our knowledge of the world including scientists from different cultures
- to encourage pupils to relate their scientific studies to applications in the real world
- to develop a knowledge of the science contained within the programmes of study of the National Curriculum.

To build on pupils' curiosity and sense of awe of the natural world:

- to develop in pupils a general sense of enquiry which encourages them to question and make suggestions
- to encourage pupils to predict the likely outcome of their practical investigations.

To use a planned range of practical investigations to give pupils a greater understanding of scientific concepts and knowledge:

- to provide pupils with a range of specific investigations and practical work which gives them a worth-while experience to develop their understanding of science
- to progressively develop pupils' ability to plan, carry out and evaluate simple scientific investigations and to appreciate the meaning of a 'fair test'.

To develop the ability to record results in an appropriate manner including the use of diagrams, graphs, tables and charts:

- to introduce pupils to the language and vocabulary of science
- to give pupils regular opportunities to use the scientific terms necessary to communicate ideas about science
- to develop pupils' basic practical skills and their ability to make accurate and appropriate measurements
- within practical activities give pupils opportunities to use a range of simple scientific measuring instruments such as thermometers and force meters and develop their skill in being able to read them.

To develop pupils' use of technology in their science studies:

- to give pupils opportunities to use technology (laptops, iPads, video, digital camera, data logger) to record their work and to store results for future retrieval throughout their scientific studies
- to give pupils the chance to obtain information using reliable sources from the internet.

Implementation

The organisation of Science work will involve as much first-hand experience as possible. Children will be given opportunities to work in a variety of ways such as individually, in pairs and in groups. The form of enquiry will often determine this. Most children are very keen to investigate but need to be encouraged to persevere and to examine alternative methods and ideas when things don't work out as expected. In this way, they will develop increasing resilience.

The study of science will be planned to give pupils a suitable range of adapted activities appropriate to their age and academic attainment. Tasks will be set, in accordance with our non-negotiables (C1,C2,C3), which challenge all pupils. For pupils with SEND, extra support or scaffolding will be given to allow access to the tasks and where appropriate a differentiated curriculum will be provided.

Pupils will undertake a variety of structured tasks and open-ended investigative work:

- tasks to develop good observational skills
- practical investigations using measuring instruments which develop pupils' ability to read scales accurately and giving them the opportunity to choose the most appropriate tools for the task
- structured tasks to develop understanding of a scientific concept
- open-ended investigations.

On some occasions, pupils will carry out the whole investigative process individually or in small groups.

Relevance

Wherever possible science work will be related to the real world and everyday examples will be used. For example, topics relating to our environment are taught in the summer term or early in the autumn term so that we can observe changes in plant and animal life.

Cross-curricular Skills and Links

Science pervades every aspect of our lives and we will relate it to all areas of the curriculum. We will also ensure that pupils realise the positive contribution of both men and women to science and the contribution from those of other cultures. We will not only emphasise the positive effects of science on the world but also include problems, which some human activities can produce.

Technology is a valuable resource within the teaching of science. We use it to support the teaching of science where appropriate to both extend and support the children's understanding of the topic.

Continuity and Progression

Children are encouraged to investigate through practical experience; teachers guide the children and plan opportunities that allow the children to experience and learn whilst experimenting for themselves. Through careful planning, pupils' scientific skills and knowledge gained in EYFS and Key Stage 1 will be consolidated and developed during Key Stage 2.

Pupils in EYFS will be introduced to science in accordance with the EYFS statutory framework. This includes child-led explorations of the natural world, where children are guided to make sense of their physical world and community. Pupils in Key Stage 1 will continue to develop their natural curiosity of the natural world and are encouraged to be curious and ask questions about what they notice. Their understanding of scientific ideas is supported through the use of different types of scientific enquiry so that children can answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information.

Pupils in Lower Key Stage 2 will develop their scientific knowledge and skills through focused observations and explorations of the world around them. Children are encouraged and supported to ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. These will be further developed through supportive investigations into more independent work at Upper Key Stage 2. Children learn to draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

The knowledge and content prescribed in the National Curriculum will be introduced in a progressive and coherent way. Liaison with local secondary schools will ensure that children are prepared for the Key Stage 3 science curriculum.

Equality of Opportunity

All children have equal access to the science curriculum and its associated practical activities. The SLT, Classteachers and LSAs at St Thomas' Primary School are responsible for ensuring that all children, irrespective of gender, learning ability, physical disability, ethnicity and social circumstances, have access to the whole curriculum and make the greatest possible progress. Where appropriate, work will be adapted to meet pupils' needs and, if appropriate, extra support given. More able pupils will be given suitably challenging activities. Gender and cultural differences will be reflected positively in the teaching materials used.

All children have equal access to the Science Curriculum, its teaching and learning, throughout any one year. This is being monitored by analysing pupil performance throughout the school to ensure that there is no disparity between groups.

At St Thomas of Canterbury Church of England Primary School we recognise our duties and responsibilities under the Disability Discrimination Act as outlined in our Disability Equality Scheme and Action Plan.

It is our aim that through specific and accurate planning, resource allocation, adapted and differentiated teaching and use of adult intervention and support (where necessary), that every child, irrespective of disability, will have full access to the curriculum and feel and be enabled to participate actively in developing to their full potential their skills, knowledge and understanding. We will ensure that all 'reasonable adjustments' are made to help both children and adults with identified special needs and disabilities to participate in the science curriculum.

Health and Safety

Pupils will be taught to use scientific equipment safely when using it during practical tasks. Classteachers and LSAs will check equipment regularly and report any damage, taking defective equipment out of action. A risk assessment will be carried out for all practical tasks any perceived hazards will be reported to the Science Subject Leader, in consultation with the Headteacher if necessary, who will determine the appropriateness of said task.

The school is aware of the importance of safety in all aspects of school life, but particularly where

science is concerned. Teachers follow safety rules and regulations where necessary and try to develop an awareness and appreciation of safety amongst the children. The safety guidelines followed in our school incorporate advice and guidance from CLEAPSS and the Local Authority health and safety standards.

Assessment for Learning, Recording and Reporting

Throughout the school, teachers will assess whether children are working at, above or towards the expected level for their age (ARE) based on their understanding and application of the content of the National Curriculum 2014. This will be recorded annually on Insight. Teachers will record children's progress regularly on Subject Assessment Statements based on milestones for the end of EYFS, Year 2, Year 4 and Year 6. These will be passed on and updated throughout the school. Progress and attainment are reported to parents through parents' evenings and end of year reports.

Marking

Orange A4 exercise books are used for written science. Pencil is used for writing and drawing in Key Stage 1 and pen is used for writing and pencil is used for drawing in Key Stage 2. Skill-based learning objectives at the start of each piece of work are concise and measurable. Rulers are used to draw diagrams, graphs and charts.

Much of the work done in science lessons is of a practical or oral nature and, as such, recording will take many varied forms. It is, however, important that written work is marked regularly and clearly, as an aid to progression and to celebrate achievement. When appropriate, pupils may be asked to self-assess or peer assess their own or other's work. Marking will be in line with our school's feedback policy. Marking should be positive and include next steps for progress once per unit. Comments in a child's book must be relevant to the learning objective to help children to better focus on future learning and mastery.

Role of the Subject Leader

- To be enthusiastic about Science and demonstrate good practice.
- To work alongside colleagues in planning where needed (progress and tasks).
- To work alongside teachers in the classroom (this will depend on release time), monitoring the planning and delivery of lessons.
- To undertake lesson visits – including some formal observations and informal drop-ins.
- To coordinate and arrange staff in-service training as required.
- To audit resources, identify needs and order equipment in school after consultation with colleagues.
- To manage the Science budget. The amount allocated is decided on a yearly basis and is dependent on the priorities of the School Development Plan.
- To review the work of children across the age range (curriculum monitoring).
- To review and evaluate the effectiveness of teaching and learning of Science, including opportunities for children to develop their spiritual, moral, social and cultural well-being.
- To provide guidance on the implementation of the Science policy.
- To suggest appropriate assessment activities where needed.
- To provide support to those colleagues who request/require it, including help with planning and organisation.

Resourcing

The school holds a bank (Science cupboards and shelves) of teachers' resource books and frequently used resources including hand lenses, magnets, thermometers and measuring equipment. Children are encouraged to choose from a range of equipment. Expensive and less frequently used items are also kept within the central store. Objects which are specific to a single year group may be kept within those classrooms (e.g.: Sex Education videos for RSE are stored in Year 6).

The Science Subject Leader, with the support of the Science TA/ Governor, is responsible for maintaining this area and ordering any necessary items that have been identified as a need. All staff members have a shared responsibility for collecting and returning necessary items to the correct place to ensure that resources are easy for all staff to access. Specialist pieces of equipment and those posing a potential safety risk will be held centrally and staff given access when required.

Pupils are encouraged to treat equipment with respect and to responsibly ensure it is well stored and maintained. Any losses or breakages must be reported to the Science Subject Leader.

Role of the Governing Body

Every governor takes a special interest in at least one curriculum area or focus in the school. At present there is a named governor for science who supports the subject leader and keeps up to date with policies, strategies, procedures, etc. through regular visits.

These visits are used to become familiar with and monitor science teaching, visit lessons first hand and to promote levels of accountability, challenge and support. Following a governor visit, a written report is submitted to the Science Subject Leader/Headteacher and discussed at a full governing body meeting.

Review

The policy will be reviewed at least every 3 years, or as new guidance becomes available to schools from the Local Authority (LA) or Department of Education (DfE).