

Science Policy



Date of Amendment: May 2020

Review Date: May 2023

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 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 activities 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' Junior School will continue to 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 investigations and practical activities 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 computing 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 and effects within 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 investigations and practical activities

To use a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science as well as scientific method

- 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 develop progressively 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 ICT in their science studies

- to give pupils opportunities to use ICT (lap-tops, iPads, video, digital camera, data logger) to record their work and to store results for future retrieval throughout their science 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 differentiated activities appropriate to their age and abilities. Tasks will be set, in accordance with our non-negotiables (C1,C2,C3), which challenge all pupils, including the more able. For pupils with SEN, the task will be adjusted, or pupils may be given extra support or scaffolding. The grouping of pupils for practical activities will take account of their

strengths and weaknesses and ensure that all take an active part in the task and gain in confidence.

Pupils will be involved in a variety of structured activities and in more open-ended investigative work:

- activities to develop good observational skills
- practical activities 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 activities 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, themes 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. By careful planning and liaison with St Thomas' Infant School, pupils' scientific skills and knowledge gained at Key Stage 1 will be consolidated and developed during Key Stage 2.

Pupils in Lower Key Stage 2 will be introduced to science through focused observations and explorations of the world around them. These will be further developed through supportive investigations into more independent work at Upper Key Stage 2. 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 TAs at St Thomas' Junior 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 Junior School we recognise our duties and responsibilities under the Disability Discrimination Act as outlined in our Disability Equality Scheme and Action Plan. (December 2007)

It is our aim that through specific and accurate planning, resource allocation, 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 activities. Classteachers and Teaching Assistants will check equipment regularly and report any damage, taking defective equipment out of action. A simple risk assessment will be carried out for all practical activities 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 activity.

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 Target Tracker. Teachers will record children's progress regularly on Subject Assessment Statements based on milestones for the end of 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. 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 thus making marking different. 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 4-step marking policy. Marking should be positive and include next steps for progress at least twice per term. 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 practises.
- To work alongside colleagues in planning where needed (progress and activities).
- To work alongside teachers in the classroom (this will depend on release time and other available help), 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 "sample" 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 central 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.

Teachers and 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).

*Policy reviewed: **May 2020***

*Next policy review date: **May 2023***