# St Thomas of Canterbury Catholic Primary School

*'To Love and To Serve God and each other and to be the best we can be'*

# Science Policy

Next Review date: October 2022

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# Policy on Science

## 1 Aims and objectives

1.1 Science teaches an understanding of natural phenomena. It aims to stimulate a child's curiosity in finding out why things happen in the way that they do. It teaches methods of enquiry and investigation to stimulate creative thought. Children learn to ask scientific questions and begin to develop scientific knowledge and skills in a context that is relevant to their current and future lives.

1.2 Our objectives in the teaching of science are for all our children:

- to ask and answer scientific questions;
- to plan and carry out scientific investigations, with the correct use of equipment (including IT);
- to understand the importance of Science in the everyday lives;
- to know about life processes;
- to know about materials, electricity, light, sound, and natural forces;
- to know about the nature of the solar system, including the earth;
- to know how to evaluate evidence, and to present conclusions both clearly and accurately.
- to apply scientific skills to enquiries.

## 2 Teaching and learning style

2.1 We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's knowledge, skills, and understanding. Sometimes, we do this through whole-class teaching, while at other times, we engage the children in an enquiry-based research activity. We encourage the children to ask, as well as answer, scientific questions. They have the opportunity to use a variety of data, such as statistics, graphs, pictures and photographs. They use ICT in science lessons because it enhances their learning. They take part in role-play and discussions, and they present reports to the rest of the class. They engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in real scientific activities, e.g. investigating a local environmental problem, or carrying out a practical experiment and analysing the results.

2.2 We recognise that in all classes, children have a wide range of scientific abilities, and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways:

- setting tasks which are open-ended and can have a variety of responses;
- setting tasks of increasing difficulty (we do not expect all children to complete all tasks);
- grouping children by ability in the room where deemed necessary, and setting different tasks for each ability group;
- providing resources of different complexity, matched to the ability of the child;
- using classroom assistants to support the work of individual children or groups of children.

## 3 Science curriculum planning

3.1 Science is a core subject in the National Curriculum. The school uses the national scheme of work for science as the basis of its curriculum planning. The national scheme has been adapted to the local circumstances of the school in that we make use of the local environment in our fieldwork, although we choose a locality where the physical environment differs from that which predominates in our immediate surroundings.

3.2 We carry out our curriculum planning in science in three phases: long-term (curriculum map) and medium-term. The long-term plan maps the scientific topics studied in each term during the Key Stage. This is fixed so that skills and knowledge are developed appropriately. In some cases, we combine the scientific study with work in other subject areas; at other times, the children study science as a discrete subject.

3.3 Our medium-term plans are based on the KENT scheme of work for Science. This is supplemented with ideas and resources from STEM learning and the ASE (association for science education). The medium term plans detail individual lessons. They specify the learning objective and expected outcomes of each lesson as well as the key vocabulary, key questions and activities.The science subject leader monitors these plans each in order to ensure complete coverage of the National Curriculum (1 hour a week at key stage one, 2 hours a week at key stage 2).

3.4 Topics are planned in science so that they build on prior learning and are relevant to the children. We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit. Skills and knowledge will be taught with equal consideration in key stage one. In key stage two this shifts to 60% knowledge and 40% skills-based teaching. Progression is also built into the science scheme of work, so that the children are increasingly challenged as they move up through the school.

## 4 The Foundation Stage

4.1 We teach science in Early Years as an integral part of the topic work covered during the year. By its nature it is largely focused on skills. We relate the scientific aspects of the children's work to the objectives set out in Early Learning Goals which underpin the curriculum planning for children aged three to five. Science makes a significant contribution to developing a child's knowledge and understanding of the world, e.g. through investigating what floats and what sinks when placed in water.

## 5 Science and inclusion

5.1 At our school, we teach science to all children, whatever their ability and individual needs. Science forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our science teaching, we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language, and we take all reasonable steps to achieve this. For further details, see individual whole-school policies: concerning these areas.

5.2 When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style and differentiation – so that we can take some additional or different action to enable the child to learn more effectively. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels. This ensures that our teaching is matched to the child's needs.

5.3 Intervention through School Action lead to the creation of an individual support plan for children with special educational needs. The support plan may include, as appropriate, specific targets relating to science.

5.4 We enable all pupils to have access to the full range of activities involved in learning science. Where children are to participate in activities outside the classroom (a trip to a science museum, for example), we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

## 6 Assessment for learning

6.1 Teachers will assess children's work in science by making informal judgements during lessons. On completion of a piece of work, the teacher assesses it, and uses this assessment to plan for future learning. Written or verbal feedback is given to the child to

help guide his/her progress. Older children are encouraged to make judgements about how they can improve their own work.

6.2 At the end of a unit of work, s/he makes a summary judgement about the work of each pupil in relation to the National Curriculum assessment framework about whether each objective has been met or not. The teacher records the attainment grades on a spreadsheet. We use these grades as the basis for assessing the progress of each child, and we pass this information on to the next teacher at the end of the year which allows for learning gaps to be addressed as children pass through the school.

## 7 Resources

7.1 We have sufficient resources for all science teaching units in the school. We keep these in a central store, where there are labelled boxes of equipment grouped according to resource type. The library contains a good supply of science topic books and ICT software is available to support children's individual research and investigations.

7.2 The responsibility of organising, setting up and maintaining this area is that of the subject leader. However, the whole staff is responsible for ensuring they returned borrowed items to the cupboard.

7.3 Under no circumstance are children allowed access to this area.

## 8 Health and Safety

8.1 Science is taught in line with our general school Health and Safety policy. Individual teachers will need to undertake their own specific risk assessment for potentially unsafe activities.

8.2 Advice about specific health and safety issues for individual topics/lessons is given in ‘Be Safe! Some aspects of safety in Science and Technology for Key Stage 1 and 2’ (ASE 2001). Copies are available in the Science cupboard.

8.3 The school subscribes to CLEAPSS School Science Service which provides teachers with up-to-date information and advice on primary Science and Technology issues and resources and publishes free guides. Details of access can be found in the teachers’ Science Handbook.

## 9 Monitoring and review

8.1 The coordination and planning of the science curriculum are the responsibility of the subject leader, who also:

- supports colleagues in their teaching, by keeping informed about current developments in science and providing a strategic lead and direction for this subject;
- gives the headteacher an annual summary report in which s/he evaluates the strengths and weaknesses in science and indicates areas for further improvement;
- uses specially allocated regular management time to review evidence of the children's work through ‘book looks’, and to observe science lessons across the school.