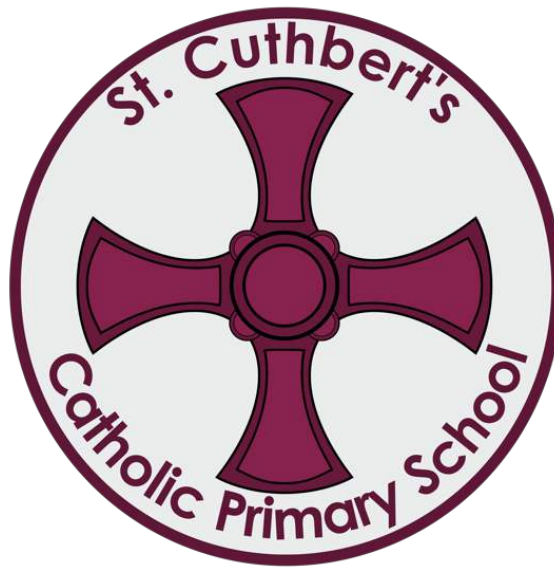


Science Policy

St Cuthbert's Catholic Primary



Approved by:	Governing Body	Date:
Last reviewed on:	May 2024	
Next review due by:	July 2026	

Contents

1. Introduction	2
2. Vision.....	3
3. Purpose of study	3
4. Aims & Intent.....	3
5. School Curriculum Intent	4
6. Implementation.....	6
7. Impact.....	9
8. Review.....	10

1. Introduction

You are unique, talented and loved by God

Every child has the right to an education. (Article 28 UNCRC)

**Education must develop every child's personality, talents & abilities to the full.
(Article 29 UNCRC)**

This policy is written with consideration for the Gospel values of our Catholic school and for our ongoing commitment to the Rights of the Child which underpins our day-to-day practice and ethos. Although direct reference to these considerations are not continuously made, the policy has been written with full awareness of our responsibility and commitment to the faith and rights of our pupils.

As part of the Bishop Chadwick Catholic Education Trust (BCCET), we recognise that Science is a systematic investigation of the physical, chemical and biological aspect of the world we live in and beyond. The study of science enables children to think creatively to understand and explore the world around them.

Science involves practical investigations, observations and collecting evidence to develop pupils' understanding of fundamental concepts. Science should always encourage creative and critical thought by encouraging children to engage in questioning, discussion and research about science-based issues which affect their lives now and in the future. Through their work in science, children will gain the knowledge and understanding to begin to make sense of phenomena and events in our world today.

Our pupils are all unique individuals with their own strengths, aptitudes, interests and dreams. As a Catholic school community, we support each child to make the most of every opportunity we offer.

This policy outlines the teaching and learning of Science at St Cuthbert's Catholic Primary School. The implementation of the policy is the responsibility of all teaching staff and will be monitored by the Science Co-ordinator and Head Teacher.

2. Vision

At St. Cuthbert's our vision is to provide children with a science curriculum that enables them to explore and discover the world around them. To accomplish this, we aim to provide lessons rooted in scientific enquiry with practical hands-on experiences that encourage a deeper understanding and curiosity with questioning. We believe it is vital to promote transferrable skills such as observation, communication and team work to develop the whole child as a lifelong learner in science. Lessons consolidate prior knowledge, encourage deeper understanding and are rooted in scientific vocabulary.

3. Purpose of study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

(DfE 2015)

4. Aims & Intent

The National Curriculum for science aims to ensure that all pupils:

- Have a high-quality science education curriculum that provides the foundations for understanding the world through specific disciplines of biology, chemistry and physics.
- Understand that science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of knowledge, methods, processes and use of science.
- Build up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. This should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave and analyse causes.

At St Cuthbert's we also aim for our pupils to:

- have learned the knowledge and skills set out in the National Curriculum.
- leave us with a secure knowledge of the world around them through biology, chemistry and physics.
- Engage in a curriculum that promotes opportunities for the children to learn knowledge and concepts as well as scientific investigation and enquiry skills.
- have a confident and positive experience of biology, chemistry and physics as well as a practical, hands-on science which accompanies these disciplines.
- learn how to use and apply their knowledge and understanding to eventually be able to observe, prepare and deliver simple testing, measure and present findings, draw conclusions and know the importance of fair testing when doing so.
- to makes purposeful links with our local community and environment to further encourage their own personal enquiry and curiosity.

5. School Curriculum Intent

5.1 Early Years

The DfE identifies three areas that are particularly important for *building a foundation for igniting children's curiosity and enthusiasm for learning, forming relationships and thriving. These are the prime areas:*

- *communication and language*
- *physical development*
- *personal, social and emotional development*

Providers must also support children in four specific areas, through which the three prime areas are strengthened and applied. The specific areas are:

- *literacy*
- *mathematics*
- *understanding the world*
- *expressive arts and design*

Within science, it is mainly explored through communication and language, personal, social and emotional development and understanding the world.

The development of children's spoken language underpins all seven areas of learning and development. Children's back-and-forth interactions from an early age form the foundations for language and cognitive development. The number and quality of the

conversations they have with adults and peers throughout the day in a language-rich environment is crucial. By commenting on what children are interested in or doing, and echoing back what they say with new vocabulary added, practitioners will build children's language effectively.

Children's personal, social and emotional development (PSED) is crucial for children to lead healthy and happy lives and is fundamental to their cognitive development. Underpinning their personal development are the important attachments that shape their social world. Through adult modelling and guidance, they will learn how to look after their bodies, including healthy eating, and manage personal needs independently.

The most crucial element to the foundation of their science education comes from understanding the world. Understanding the world involves guiding children to make sense of their physical world and their community.

Our EYFS curriculum is built around the [Development Matters non-statutory guidance](#) and is assessed using Early Learning Goals. Science is taught throughout the early learning environment, opportunities for enquiry and use of the outdoor environment. Links are made across the curriculum so that the three prime areas of learning which prepare them for accessing the KS1 science curriculum are strengthened.

5.2 National Curriculum requirements for subject content at KS1

Pupils should experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas. Most learning about science should be done through the use of first-hand practical experiences as well as appropriate secondary sources.

[Programmes of study for KS1 can be found here](#)

5.3 National Curriculum requirements for subject content at lower KS2

Pupils should continue to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments. They should begin to develop questions about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best way of answering them. This should include 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. They should be able to draw simple conclusions using scientific language to talk and write about their findings.

[Programmes of study for lower KS2 can be found here](#)

5.4 National Curriculum requirements for subject content at upper KS2

Pupils should have the opportunity to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationship and interactions more systematically.

Children should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should recognise that scientific ideas change over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests using a wide range of sources to do this.

Children should be able 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 using the appropriate scientific vocabulary to articulate their answers.

During Year 5, pupils are required to learn about changes during puberty and reproduction. This curriculum is delivered alongside our RSE programme Ten:Ten so that pupils learn the science alongside a programme designed to incorporate catholic beliefs and an opportunity for pupils to reflect on their own responses to new knowledge about the human body.

[Programmes of study for upper KS2 can be found here](#)

5.5 Inclusion

All science lessons are tailored to the needs of the children in the class. The whole class goes through the same content at the same pace but there is still plenty of opportunity for support, scaffolding and challenge. All science lessons are inclusive for all children. Science has the flexibility to allow for child-led investigations and enquiry based on their natural curiosity providing opportunities for children to develop their talents and interests.

No child will be denied a full curriculum. We recognise that some SEND pupils may find concepts more challenging or the investigative side of science more difficult to access and therefore support will be implemented to ensure the children get the best possible learning experience without other factors hindering their learning such as literacy skills. Teachers and teaching assistants deliver adaptive lessons and sequences of learning to support all pupils and where appropriate plan scaffolds for those pupils who have specific needs identified on Support Plans.

6. Implementation

Science is a core subject in the National Curriculum. Our school uses the objectives from the curriculum as the basis for the planning in Science alongside guidance from BCCET. Planning is progressive and begins with basic knowledge and skills which are then applied and practised in different year groups and with an expectation of deeper knowledge, understanding and application of scientific enquiry and investigative skills.

6.1 Sequences of Learning

Our sequence of learning is in line with National Curriculum expectations and our long term and medium-term plans are adapted according to the needs of the class.

- Long Term Planning maps out topics with some space in the year for assessment and consolidation
- Medium Term Plans follow the sequence of learning from the National Curriculum but are adapted according to priorities and the particular needs of the cohort

In Key Stage 1, children are taught a wide range of subject knowledge and working scientifically is embedded throughout. It encourages children to ask questions and know the same question can be answered in different ways; make close observations; perform simple tests; identify and classify; use observations and ideas to suggest possible answers to an enquiry question; gather and recording data which will also help them answer questions.

These skills are taught through the different biology, chemistry and physics units throughout KS1 but there is also emphasis on the children being able to read and spell scientific vocabulary at a level consistent with their KS1 word reading and spelling knowledge.

In Key Stage 2, children are encouraged to deeper the knowledge and understanding of biology, chemistry and physics taught at KS1 as well as being introduced to new topics. The children are encouraged to build on the scientific investigation and enquiry skills from KS1 in lower KS2 but by the time the children are in upper KS2 they should be able to perform these skills with increased independence.

By end of KS2 it is expected most children should be able to plan different types of scientific enquires to answer questions; know how and why variables needs to be controlled; take measurements using a range of scientific equipment with increased accuracy and precision and know when repeat findings are needed; record data and results of increasing complexity and present these in the appropriate form; use test results to make predictions for further testing; report and present findings from enquiries

including conclusions, casual relationships, explanations and a degree of trust in the trust; they should also be able to use scientific evidence that has been used to support or refute ideas and arguments.

All children are encouraged to lead their own investigation showcasing the knowledge and skills developed as it helps them develop resilience when things do not go as planned and a greater understanding of the importance of fair testing.

6.2 Timetabling

- All children are taught science weekly
- Pupils are taught and given opportunities to take part in practical science to develop their enquiry and investigative skills.
- Recall of previous learning from lessons, topics and previous year groups used to consolidate knowledge and understanding.

6.3 Classroom Environment

- Classes have displays that reflect the current science unit of work and contain key vocabulary and children's work.
- Classes have a range of accessible resources during lessons to support learning

6.4 Science Lessons

- Each lesson focuses on one clear objective which all children are expected to achieve.
- Lessons vary but can include elements of enquiry, observations, deeper questioning, practical investigations, use of outdoor environment, opportunities to explore scientists and the influence of their work and time to record findings and to write like a scientist.
- Staff use what is happening in the wider world to embed concepts where relevant.

6.5 Staff Development

We are committed to the ongoing development of science.

- Each year, we identify a focus area for improvement which is included in our School Improvement Plan.
- We dedicate staff meeting time to review planning, resources and CPD.
- There will be one science observation per academic year based on the 5 strand approach.

7. Impact

Senior Leaders, science lead, teachers & teaching assistants are all responsible for monitoring the impact of the science curriculum to ensure pupils have a positive experience of science and are accessing the science curriculum

7.1 Assessment and Recording

- Teachers assess children's work in science by making judgements against objectives at the end of blocks of work and by using end of topic knowledge quizzes.
- Data is recorded at the end of each unit. Their knowledge quiz score is recorded and the spreadsheet populates whether the child is working below, working towards, working at or working above standard in Science both in terms of knowledge and scientific enquiry.
- Concerns about pupil performance in science may be discussed with the next class teacher or picked up with home learning or intervention to help with misconceptions if necessary.
- Pupils showing particular strength and skill or who show enjoyment of science are challenged and moved on through activities that help develop and broaden their working scientifically skills using STEM resources.
- At the end of the year, the class teacher makes a summary judgement about the work of each pupil in relation to the skills they have developed in-line with the National Curriculum in England 2014 and these are reported to parents as part of the child's annual school report

7.2 Monitoring and Reviewing

- Teaching & Learning is monitored through the Five Strand approach in line with BCCET which includes: Checking of planning by subject lead / SLT to ensure thorough and timely coverage, lesson observations, shared monitoring of books with opportunities for discussion and shared practice to monitor impact collectively, monitoring of assessment data and pupil voice
- The monitoring of the standards of children's work and of the quality of teaching is through monitoring planning, lessons and pupil voice in science, which is the responsibility of the co-ordinator and Head Teacher.
- The work of the co-ordinator also involves supporting colleagues in the teaching of science, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school
- Pupils and staff also have opportunities informally and more formally to make suggestions e.g. questionnaires, resources audit and in curriculum staff meeting time.
- Science governor, the co-ordinator will endeavor to communicate each term to discuss teaching and learning as well as development priorities. Co-ordinator will

also contribute to the Head Teacher's report to governors termly on developments in science within our school.

8. Review

This policy links to:

- National Curriculum
- PHSE / RSE Policy
- SEND Policy
- Curriculum Policy

This policy will be reviewed every two years by:

- Science co-ordinator
- SLT
- Link governor or whole governing body