

Cavendish Church of England Primary School



Science Policy

Signed on behalf of the Governing Body	
Signed: Headteacher	
Date:	Autumn 2020
Date to be Reviewed:	Autumn 2022

Our Vision

In our school our Christian vision shapes all we do.

Challenge, Creativity, Compassion: Create a pure heart in me – Psalm 51:10

Our School Vision Statement reflects this commitment as children and staff are taught to challenge inequality, prejudice, bullying and harm; to respond with compassion and sensitivity to individual need and to respect the rights of all individuals to be safe and nurtured within God's world.

We encourage children to respond creatively to internal and external challenges in life, with compassion for others, including consideration for creation and the planet itself. Thus we show how to live justly and with a pure heart, reflecting the teachings of Jesus and God's love within our school environment.

Intent

At Cavendish Church of England Primary School it is our aim to provide a science curriculum that encourages children to be curious about the world around them. We want to provide children with a strong understanding of scientific processes in the key areas of biology, chemistry and physics, as well as giving them opportunities to acquire specific skills that will support them to think scientifically. Our curriculum will enable children to both ask and consider challenging questions, including religious and scientific views about how the world was formed. Children's scientific enquiry skills are embedded through practical investigations where children can think and work creatively to answer questions and develop their key scientific knowledge. We ensure that scientific skills and key scientific knowledge are built-on and developed throughout the children's time at school so that they can apply their knowledge of science when using equipment, conducting investigations, building arguments and explaining concepts confidently. Our vision is that all children will have a secure knowledge of scientific processes and an understanding of the uses and implications of Science, today and for the future. Children will understand the importance of our Bio-diversity and show care and compassion for the world around them as well as continuing to be curious and ask questions about their surroundings. Through a study of specific scientists and inventors, children will explore how compassion for others has enabled scientists to find creative solutions to some of our biggest challenges e.g. health, energy and resources.

Implementation

Teachers will encourage a positive and enthusiastic learning environment where children are all able to achieve. The science curriculum is organised into blocks and taught across the three key stages (KS1, LKS2, UKS2). The curriculum builds on children's experiences in EYFS - KUW, moving and handling, technology and creative development.

Teachers follow a two year rolling curriculum to enable all children to engage in all learning units.

The science curriculum is implemented through:

- A weekly science afternoon to enable each lesson the time needed for teaching scientific knowledge, developing key vocabulary and carrying out scientific investigations.
- Learning builds on prior knowledge from previous key stages and ensures children have opportunities to embed these skills and progress further in their knowledge, understanding and enquiry skills. (See progression maps)
- Frequent scientific investigations that allow children to explore and apply the key skills and knowledge they have been taught.
- Working scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school experiences.
- New vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.
- Problem solving is planned into lessons to enable children opportunities to find out for themselves.
- Children are encouraged to ask their own questions and are given opportunities to use their scientific skills and research to discover the answers through planning their own investigations of choosing how to carry out a given investigation.

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- Teachers use precise questioning in class to check conceptual knowledge and skills and assess regularly to identify those children with gaps in their learning.
- Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning opportunities.
- Science opportunities are provided in Early Years through Fresh Air Friday, a weekly walk around the village to explore and develop an understanding of the world around us. Organised directed play activities support children in develop a basic knowledge of the biology, chemistry and physics to prepare them for formal science learning in KS1.
- Forest Schools allows children to apply their scientific understanding and curiosity in a naturalistic setting.

Impact

Through providing hands on, engaging science curriculum for all children at Cavendish Church of England Primary School, children will be equipped with a foundation of knowledge and skills to support them through their continuing education and in the wider world.

The impact of the science curriculum will be measured through:

- Practical science investigations at the beginning of a learning unit to assess children working scientifically.
- Practical science investigations at the end of a learning unit to assess children's application of key scientific knowledge.
- Mind maps at the beginning of a learning unit to assess children's prior knowledge
- Science quizzes at the end of a learning unit to assess children' key knowledge and vocabulary.
- Formative assessment against subject statements on Target Tracker.
- End of key stage formative assessment using Framework and NC descriptors.

Children will be able to apply their skills to wider curriculum areas and will have the knowledge and understanding required to transition to KS3.

Enrichment

The school aims to provide children with a wide range of science enrichment opportunities both within school and during visits and trips. The school runs an annual Science Week where visitors are invited into school and visits outside of school are organised to support children's understanding of how science is implemented within many work places.

The school also participates in other activities and trips that promote science including; National Bird watch, organic farm visit, secondary school science fairs and the annual Suffolk agricultural farm show, Ipswich.

Science forms a key part of transition where secondary school science teachers come into our setting to deliver a practical workshop. Forest schools enables children to further explore and apply scientific understanding as a practical experience in the natural world.

Science after school tuition has been used to develop our gifted and talented programme. Whilst clubs change termly, Science Club is part of our rolling programme offered along with wider applications such as gardening and cooking clubs.

Cultural capital

Our science curriculum has been carefully planned to link each learning unit to the work of scientists and inventors from across the world, past and present. Our curriculum will ensure that all children have the opportunity to learn about these famous individuals and the impact they have had on the world around us thus promoting diversity and inclusion. Scientists have been chosen to link to topic area study and to reflect scientific achievement over a range of time, gender and cultures. Our science curriculum also promotes British Values through exploring how each value plays a key role in how new scientific ideas are introduced into the world as well as how these values are key when considering our responsibilities for our surroundings. We also embed our British values when carrying out scientific investigations to ensure all members of the team have equal opportunities to contribute.

All science lessons will provide children the opportunities to be challenged, be creative and be compassionate to others and the world that surrounds them.

Inclusion

The school provides a broad and balanced curriculum to all children regardless of ability or background. Lesson activities are differentiated to ensure all children are able to access their learning. Children with SEND are supported in a variety of ways including; word mats, writing frames, visual aids, specific questioning, pictorial representations, adult support, peer support and support in using scientific equipment. To support AGT children, teachers use different open ended questions and statements to allow for deeper thinking and application of scientific knowledge and skills at a mastery level.

Our work on scientists and inventors from around the world supports diversity and equal opportunities of all.

Cross curricular links

Science provides many opportunities for cross-curricular learning. The school aims to provide children with many STEM learning activities where children are able to use maths, technology and engineering skills within their science learning.

Maths is promoted through measuring, recording and interpreting data.

Children will have opportunities to use different technologies including I-pads, laptops, digital scales and cameras in their science lessons. Engineering is promoted through the design and technology curriculum, children use their scientific knowledge and understanding to design and build their own mechanisms.

Science lessons also provide opportunities to develop reading and writing skills through accurate observation, use of specific vocabulary, evaluation, reporting and analyzing findings.

Within History lessons, children have opportunities to learn about significant scientists and inventors from the past.

In Geography children develop their knowledge of plants and habitats around the world, weather patterns, seasons and explore climate change.

PE and PSHE promote children's biology learning through understanding the impact of exercise and different foods on the body. Children also explore dental hygiene and safety with medicine. In KS2 children explore the facts and risks associated with drugs, alcohol and tobacco.

In music, children can apply their understanding of sound to their knowledge of how musical instruments work.

Hands on cooking experiences allow for children to understand the change of materials and states of matter.

Computing lessons support children's understanding of technology and electricity.

RE allows children the opportunities to compare the bigger questions of how different religions and science believe the world was created, and allows them to engage with 'unanswerable' questions.

Forest school supports children's understanding of plants, habitats through their exploration of the world around them. Outdoor works supporting understanding of the fire triangle.

Throughout all of our teaching we provide cross curricular opportunities to ensure children can make links in all of their learning.