



Ancaster

Church of England Primary School

Science Policy

Vision Statement

In the spirit of St. Martin, the Centurion Saint, we are a welcoming and inclusive community where every individual is celebrated. As we journey together through exploration and learning, our curriculum strives to promote local and global citizens who realise they have the power to change. Our high expectations for all, underpinned by our core Christian values of Wisdom, Courage and Respect, allow us to challenge everybody to be the best they can be.

Be the Best You Can Be!

Wisdom Courage Respect

How does our Christian Vision impact upon computing at Ancaster?

We have chosen 4 Guiding Lights which are inspired by our Church School Vision. Below is an explanation of how each of these guiding lights impacts upon the teaching and learning of computing at Ancaster.

Inclusivity-In every lesson, when appropriate differentiate learning to cater for the needs of each individual. Children are supported and challenged to develop key skills, knowledge and vocabulary linked with each concept by ensuring they understand what they need to do and what the next steps in learning, tailored to ensure individual needs are met.

Exploration-Through innovative and creative lessons, all individuals will be able to have a better understanding of science. By working scientifically will enable the children to ask questions and recognise that they can be answered in different ways, make observations and take measurements, engage in practical enquiry to answer questions, record and present evidence, answer questions and conclude, evaluate and raise further questions and predictions and communicate their findings.

Empowerment-Across the school, Science enhances the development of language, literacy, and critical thinking skills that lead to the ability to reason logically and problem-solve creatively. Through effective teaching and learning outcomes, we can empower children to be the best they can be.

Values Led-Within science and across wider school subjects, a host of values will guide and shape their work, which are in line with the school values of courage, wisdom and respect. Promoting these values will enable effective teaching and learning opportunities to develop the education of our children.

Introduction

At Ancaster Church of England Primary School, we are committed to providing a curriculum which is broad and balanced, and provides our children with exciting learning opportunities in order for them to gain essential knowledge, skills and understanding whilst fostering their curiosity. We intend that all children should enjoy their learning, achieve their potential to *be the best they can be* and become independent life-long learners. Our curriculum is underpinned by the National Curriculum for Key Stages 1 & 2 (2014) and the Early Years Foundation Stage Framework (2021) as well as a range of carefully mapped enrichment opportunities designed to enable learning to be revisited and applied in new contexts.

Science is a core subject in the National Curriculum. This policy outlines the purpose, nature and management of the science taught in our school.

The implementation of this policy is the responsibility of the Headteacher and all the teaching staff. The subject leader has the responsibility to provide support and guidance and will monitor and evaluate standards and the quality and teaching of learning.

Statement of Intent

At Ancaster Church of England Primary School, we believe that science should be fully inclusive to every child. Our aims are to fulfil the requirements of the National Curriculum for Science, providing a broad and balanced curriculum, ensuring the progressive development of knowledge, skills and vocabulary so that learning builds on previously taught content. Links between this prior learning and other areas of the curriculum are clear. We aim to inspire in pupils a curiosity and excitement about their learning in both the classroom and in wider enrichment opportunities and educational visits.

The aims of teaching science in our school are to:

- teach scientific enquiry through contexts taken from the National Curriculum for Science;

- encourage children to become independent and enquiring learners who can pose their own scientific questions, know ways to investigate these and form their own conclusions;
- develop through practical work the skills of observation, prediction, investigation, interpretation, communication, questioning and hypothesising, and increased use of precise measurement skills and ICT;
- to equip children with the vocabulary and knowledge to be able to discuss their learning and confidently explain their scientific understanding;
- to understand the uses of science and implications of science in the past, today and in the future through the study of work by historical and contemporary scientists globally.

Legislation and Guidance

This policy has due regard to statutory legislation and guidance including, but not limited to, the following:

- DfE (2013) 'Science programmes of study: key stages 1 and 2'
- DfE (2021) 'Statutory framework for the early years foundation stage'

The Control of Substances Hazardous to Health Regulations (COSHH) 2002

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013

Roles and Responsibilities

The subject leader is responsible for:

- preparing policy documents and curriculum long term plans;
- reviewing changes to the national curriculum, updating curriculum documentation and advising on their implementation;
- leading staff meetings (PDMs) and providing staff members with the appropriate training;
- organising, providing and monitoring CPD opportunities in the subject;
- monitoring the teaching and learning of science, providing support for staff where necessary;
- organising the deployment of resources and carrying out an annual audit of all science resources;
- communicating developments in the subject to all teaching staff;
- collating assessment data and setting new priorities for development of science in subsequent years.

The class teacher is responsible for:

- acting in accordance with this policy and ensuring that lessons are taught in line with the school's Health and Safety Policy at all times;
- ensuring that all of the relevant statutory content is covered within the school year;
- liaising with the science lead about key topics, resources and supporting individual pupils;
- monitoring the progress of pupils in their class and reporting this on an **annual** basis;
- undertaking any training that is necessary in order to effectively teach the subject.

Implementation

Organisation of the Curriculum:

EYFS Statutory Framework (2021) and National Curriculum Science Programme of Study

By the end of reception children will be expected to reach these early learning goals:

- make comments about what they have heard and ask questions to clarify their understanding;
- manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices;
- explore the natural world around them, making observations and drawing pictures of animals and plants; know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;
- understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

We will focus science discovery to the three Characteristics of Learning:

- Playing and Exploring;
- Creative and Thinking Critically;
- Active Learning.

Science will provide an ideal opportunity for these to be observed by staff. Children will explore the natural world around them, use their senses to observe, describe and ask questions to deepen their knowledge. Children will be active in their learning and show motivation, involvement and concentration.

Within the Early Years, children make positive links with science to other areas.

National Curriculum: KS1 and 2

The National Curriculum sets out the programmes of study that pupils should be taught in science. The knowledge, skills and understanding in each programme of study identify the four areas of science that pupils study:

- Sc.1 scientific enquiry
- Sc.2 life processes and living things
- Sc.3 materials and their properties
- Sc.4 physical processes

Children are taught scientific enquiry skills (SC1) by exploring scientific areas of study pre-determined for each year group, but teachers have freedom to teach science skills and knowledge in ways that cross subject boundaries in order to develop a cross-curricular approach.

During KS1 pupils are given the opportunity to observe, explore and ask questions about living things, materials and phenomena. They begin to work together to collect evidence to help them answer questions and to link this with simple scientific ideas. They evaluate evidence and consider whether tests or comparisons are fair. Pupils use reference materials to find out more about scientific ideas. They are given opportunities to share ideas and communicate them using scientific language, drawings, charts and tables. They also begin to learn about famous inventors / scientists and their discoveries and how these have impacted on people's lives and our world's understanding of phenomenon.

During KS2 pupils learn about a wider range of living things, materials and phenomena, building on work previously carried out in KS1. They begin to make links between ideas and to explain things using simple models and theories. They apply their knowledge and understanding of scientific ideas to familiar phenomena, everyday things and their personal health. They begin to think about the positive and negative effects of scientific and technological developments on the environment and in other contexts. They carry out more systematic investigations, working on their own and with others. They use a range of reference sources in their work. They talk about their work and its significance and communicate ideas using a range of scientific language, conventional diagrams, charts and graphs. They also learn about famous inventors / scientists and their discoveries and how these have impacted on our understanding of the world.

Planning: Long Term Plans, Subject Overviews and Yearly Plans

Our Long-Term Plan for science carefully maps the curriculum to ensure that pupils acquire identified knowledge, vocabulary and skills in a sequential and progressive manner ensuring coverage across each subject within the curriculum. New learning is based upon what has been taught before and prepares pupils for what they will learn next. We know that if our pupils are learning our curriculum, they are making progress and are being prepared for the next stage of their educational journey both within our school and beyond.

Our Subject Overviews are created from our Long-Term Plans by our Subject Leaders for each individual subject to show the key learning in that subject across the school, setting out how it builds on what has been taught previously.

Our Yearly Plans set out the learning of each year group for the academic year in each subject area across the curriculum, including enrichment opportunities.

Throughout the curriculum delivery, opportunities are given for children to be able to revisit, recall and apply the knowledge and skills taught to support their retention of this learning and their understanding to become successful confident learners.

All curriculum documentation outlined above is available on our website.

Teaching and Learning

Our lessons have been designed using Rosenshine's Principles of Instruction to incorporate a focus on retrieval of prior learning so that children know more and can remember more as well as the explicit teaching of identified vocabulary to extend spoken and written language. Mastery principles also ensure that new learning is presented in small chunks with children given the opportunity to learn new content through explicit teaching and modelling, guided and independent practice which meets their differing needs. (Our children understand this process as I do, We do, You do). This enables teachers to identify misconceptions and address them at this point of learning. Information gained by teachers at the end of each lesson, as outlined in our Feedback Policy, enables gaps and/or misconceptions to be identified and subsequent lessons to be re-shaped to address these aspects. All lessons begin with a learning question which allows the children to understand exactly what they are learning in that lesson and how it links to knowledge they learned earlier in the year, in another subject in the current year or the previous time it was taught to them. Lessons end with a review section which enables the children to re-visit the learning question and carry out an exit task which allows them and the teacher to determine their learning in that lesson.

All science lessons take place in pupils' normal class groups in discrete weekly lessons.

Cross-curricular Links

Wherever possible, the science curriculum will provide opportunities to establish links with other curriculum areas.

English

Pupils are encouraged to use their speaking and listening skills to describe what is happening.

Pupils' writing skills are developed through recording their planning, what they observe and what they found out making links to relevant learning in English lessons.

Science based texts are used in English lessons and suggested texts linking to each unit of science across the school are identified in the science long-term plan.

Maths

Pupils use their knowledge and understanding of measurement and handling data.

Where appropriate, pupils record their findings using charts, tables and graphs.

Computing

Pupils will use IT to locate and research information.

ICT will be used to record findings, using text, data and tables.

Pupils are encouraged to use calculators and other electronic devices, gaining confidence throughout their school experience.

PSHE

Health education is taught as part of the science unit about ourselves, which covers:

- Health and growing
- Teeth and eating
- Moving and growing
- Keeping healthy
- Life cycles

History

Scientific discoveries and the contribution of individuals to science will be studied.

Spiritual development

Pupils' development will be focussed on the vastness of science and the natural world, encouraging a sense of awe.

Pupils are encouraged to think about the effect of scientific discoveries on the modern world.

Current scientific developments and issues will be discussed in the classroom, where appropriate.

Equipment and Resources

- Science resources for each unit are stored in the walk-in cupboard in Hawaii (resource room accessed from the Hall).
- Staff members must inform the science lead of any changes regarding science resources, such as broken items or when new resources are required.
- The subject leader will carry out an annual audit of the science resources, reordering any consumables when necessary.
- Class teachers can discuss the need for new resources with the science lead.

Provision for SEND, Pupil Premium, High attainers

All children have access to Quality First Teaching of a good standard. Teachers set high expectations for all pupils and plan lessons so that pupils with SEND can access every National Curriculum subject, wherever possible and ensure that there are no barriers to every child achieving. This may include children with identified SEND having work which is different to their peers dependent on their needs. Provision Maps for pupils with SEND and other additional needs are completed termly and set out how provision can be adapted to support children's needs enabling them to fully access their learning and to be the best they can be.

As well as this, our school offers a demanding and varied curriculum, providing children with a range of opportunities in order for them to reach their full potential and consistently achieve highly from their starting points.

Health and Safety

Staff members will act in accordance with the school's Health and Safety Policy at all times.

Equal Opportunities

- All pupils will have equal access to the entire science curriculum, including practical experiments;
- Gender, physical ability, ethnicity, linguistic ability and/or cultural circumstances will not impede pupils from accessing all science lessons;
- Lessons will be adapted to meet the pupil's needs and alternative arrangements involving extra support will be provided where necessary;
- All efforts will be made to ensure that cultural and gender differences will be positively reflected in all lessons and teaching materials used.
- Provide higher attaining pupils with the opportunity to extend their scientific thinking through extension activities such as problem solving, investigative work and research of a scientific nature.

Impact

Assessment and Reporting

Short and medium-term assessment is the responsibility of the class teacher and is in line with the assessment policy. However, teachers will use informal assessment and observation to determine what children can do independently and therefore plan next steps for learning. Our Science curriculum is well thought out and is planned to demonstrate progression.

Pupils will be assessed continuously throughout the year, as well as undertaking a summative assessment at the end of each academic year, including formal reporting of standards at the end of KS1 and 2.

Formative assessment is ongoing and uses work in children's books as evidence to form judgement for the objectives in the national curriculum. Feedback follows the school's policy and identifies areas for children to improve upon. Teachers use this information to identify common misconceptions and adjust future lessons accordingly to provide further teaching and modelling, independent practice or challenge enabling children to respond and reflect on their learning in order to improve.

In EYFS, each child's level of development must be assessed against the Early Learning Goals at the end of the year. Judgements will indicate if children are meeting expected levels of development; or if they are not yet reaching expected levels (emerging).

Parents will be provided with a written report about their child's attainment during the **summer** term every year.

The Science subject leader will monitor the impact Science teaching is having on the children's learning through book looks and pupil surveys to ensure the progress of knowledge and skills is being taught.

Monitor and Review

This policy will be reviewed on an annual basis by the science lead in collaboration with the headteacher. The science lead will monitor teaching and learning in science ensuring that the content of the national curriculum is covered.

Links with other policies

Curriculum Policies

Feedback Policy

Teaching and Learning and Assessment Policy

SEND Policy

Health and Safety Policy