

TUTSHILL CHURCH OF ENGLAND SCHOOL

Science Policy

Love One Another, Know Ourselves, Believe and Grow'

Written: October 2022

Review: October 2024

Signed Headteacher.....

*Our Christian Vision is rooted in 1John 4:7
'Dear Friends, let us love one another, for love comes from God'*

Signed Committee chair.....

Introduction

Our Curriculum focuses on ensuring that all our children have the best chance to achieve our Christian Vision: Love One Another, Know Ourselves, Believe and Grow.

Our School Vision is rooted in 1John 4:7 *'let us love one another, for love comes from God'*.

Tutshill C of E Primary School is an inclusive school where all people are valued and nurtured to flourish and become the best version of themselves and responsible members of God's family.

Curriculum Drivers

Throughout each subject that we teach we want to ensure that children leave Tutshill School ready for the next chapter of their lives. Therefore, we want our children to:

- understand and use our school values
- be resilient and curious learners
- be globally aware
- be able to play a role in wider society

Subject intent

At Tutshill Primary School, we value Science as an important part of the children's entitlement to a broad and balanced curriculum which promotes the spiritual, moral, cultural, mental and physical development of children and prepares them for the opportunities, responsibilities and experiences for later life. It is our intention to recognise the importance of Science in every aspect of daily life and to prepare children for the ever-changing world around us.

We intend to build a Science curriculum which develops learning and results in the acquisition of knowledge and skills. Children will know, remember and understand more following the guidelines found in the Early Years Foundation Stage and National Curriculum Science Programmes of study. Our Science Curriculum develops our children's natural curiosity, encourages respect for living organisms and the physical environment and also provide opportunities to undertake a range of scientific enquiries. We enable children to learn through varied systematic investigations, leading to them being equipped for life to ask and answer scientific questions about the world around them. As children progress through the year groups, they build on their skills in working scientifically, as well as on their scientific knowledge, as they develop greater independence in planning and carrying out different types of investigations to answer a range of scientific questions. We aim to build a Science curriculum which develops learning and results in the acquisition of knowledge and build a Science curriculum which enables children to become enquiry-based learners.

We use our core Christian values to teach children how to respect and value the work and ideas of others. Children are encouraged to use their learning behaviours

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to take responsibility for creatively and innovatively planning, carrying out and then evaluating scientific investigations whilst showing resilience and perseverance to overcome challenges.

The ABCDE teaching model develops metacognition and is used within Science lessons. Teachers activate new learning and then build on this by teaching specific skills and knowledge. Then children are given opportunities to demonstrate their skills and learning whilst completing scientific investigations and other scientific based tasks. All children are encouraged to reflect on the work they have produced and evaluate their understanding during the teaching and learning process. Children are given opportunities to research famous scientists and other important individuals who have helped shape the world, showing the real impact of Science on everyday life and our understanding of it. This in turn helps to inspire children to become the next generation of scientists and innovators preparing them for the responsibilities and experiences of later life. It also develops children's global awareness; teaching how Science both reflects and shapes our history and contribute to an awareness of British Values, culture and creativity.

Legal Framework

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

- DfE (2013) 'National curriculum in England: Science programmes of study'
- DfE (2017) 'Statutory framework for the early years foundation stage'
- Equalities Act 2010

Roles and Responsibilities

Governing Board

- Link Governor will meet with the subject leader to be able to understand the programme of study.

The headteacher is responsible for:

- Holding the subject leader to account for pupils' attainment.
- Assisting the subject leader in reviewing and updating this policy annually.
- Supporting the subject leader in identifying CPD opportunities for themselves and classroom teachers.
- Promoting the needs of all pupils and ensuring they can access a well-rounded and inclusive curriculum.

The subject leader is responsible for:

- Preparing policy documents, curriculum plans and schemes of work for the subject.
- Attending training courses and undertaking CPD opportunities for themselves.
- Reviewing changes to the national curriculum and advising staff on new developments and assisting in their implementation.
- Working with classroom teachers to plan lessons and ensure continuity and progression from year group to year group.

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- Monitoring the learning and teaching, providing support for staff where necessary.
- Encouraging staff to provide effective learning opportunities for pupils.
- Helping to develop colleagues' expertise in the subject.
- Organising the deployment of resources and carrying out an annual audit of all resources.
- Liaising with teachers and holding them to account for the attainment achieved.
- Communicating developments in the subject to all teaching staff.
- Leading staff meetings and providing staff members with the appropriate training.
- Organising, providing and monitoring CPD opportunities in the subject.
- Ensuring common standards are met for recording and assessment.
- Advising on cross-curricular and extra-curricular activities.
- Collating assessment data and setting new priorities for development of geography in subsequent years.
- Identifying areas for improvement and ensuring these are included in a subject specific action plan and form part of the SDP.
- Liaising with subject leaders from local Primary and Secondary Schools.

The classroom teacher is responsible for:

- Working with the subject leader to ensure the high-quality delivery of the curriculum and continuity between year groups.
- Acting in accordance with Tutshill C of E School policies.
- Ensuring progression of pupils' skills with due regard to the national curriculum.
- Planning engaging and interesting lessons, ensuring a range of teaching methods are used to cover the content of the national curriculum.
- Monitoring the progress of pupils in their class and reporting this on an annual basis.
- Reporting any concerns regarding the teaching of the subject to the subject leader or a member of the senior leadership team (SLT).
- Undertaking any training that is necessary in order to effectively teach the subject and improve practice.
- Reporting on pupils' progress at parents' evenings and in end of year reports.

The Specialist Educational Needs and Disabilities Co-ordinator (SENDCO) is responsible for:

- Liaising with the subject leader in order to implement and develop the subject throughout the school.
- Organising and providing training for staff for pupils with special educational needs and disabilities (SEND).
- Advising staff how best to support pupils' needs.
- Advising staff on the inclusion of objectives in pupils' individual education plans.

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- Advising staff on the use of teaching assistants in order to meet pupils' needs.

The Curriculum

Early Years Foundation Stage

Understanding the World: The Natural World

National Curriculum

Key Stage One: Working Scientifically; Plants; Animals including humans; Everyday materials; Seasonal changes; Living things and their habitats; Uses of everyday materials.

Key Stage Two: Working Scientifically; Plants; Animals including humans; Rocks; Light; Forces and magnets; Living things and their habitats; States of matter; Sound; Electricity; Properties and changes of materials; Earth and space; Forces; Evolution and inheritance.

Subject Implementation

The ABCDE teaching model is used within sequences of lessons to enable children to reflect on their learning through metacognition. Teachers activate new learning by recapping previous learning and then teaching specific skills and knowledge for the new lesson. Children are given opportunities to demonstrate their skills by being given time to explore and experiment with materials and resources whilst completing practical science tasks. Children co-operate with one another in order to develop their understanding and learning of the skills taught. They are actively encouraged to demonstrate their reflective and evaluative skills, by considering their own work alongside the work of others. Opportunities are provided for children to evaluate scientific discoveries and life changing events. The acquisition of key scientific knowledge is an integral part of our Science lessons. The progression of skills for working scientifically are developed through the year groups and scientific enquiry skills are of key importance within lessons. Each lesson has a clear focus. Scientific knowledge and enquiry skills are developed with increasing depth and challenge as children move through the year groups. They complete investigations and hands-on activities while gaining the scientific knowledge for each unit. Interwoven into the teaching sequence are key questions. These allow teachers to assess children's levels of understanding at various points in the lesson. They also enable opportunities to recap concepts where necessary. The sequence of lessons helps to embed scientific knowledge and skills, with each lesson building on previous learning. There is also the opportunity to regularly review and evaluate children's understanding. Activities are differentiated where necessary so that all children have an appropriate level of support and challenge.

At Tutshill C. of E. Primary School, our scheme has been designed as a sequential and spiral curriculum with the following key principles in mind:

- Cyclical: Pupils return to the same skills at least twice during their time in primary school.

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- Increasing depth: Each time a skill is revisited it is covered with greater complexity.
- Prior knowledge: Upon returning to a skill, prior knowledge is utilised so pupils can build upon previous foundations, rather than starting again.

The scheme of work and sequential lessons offer clear skills progression with units of work being taught progressively through the school. The lessons planned cover all elements of Science, these include: biology, chemistry and physics.

Our broad and balanced curriculum covers all National Curriculum and Early Years Foundation Stage aims in the units taught. Each unit enables children to build skills and knowledge whilst working towards exciting outcomes. Opportunities for differentiation are also provided to enable all children to access the curriculum being taught.

Scientific enquiry skills are developed throughout the school and the children have opportunities to carry out a range of different types of investigations. These include: observation over time; research; comparative and fair testing; problem-solving; identifying, grouping and classifying and pattern seeking.

Children use their Science books to apply skills and knowledge throughout the whole process of learning and carrying out practical Science tasks. They also practise techniques learned to develop and evaluate their ideas whilst working towards an outcome.

Children have access to key language and definitions in order to understand and readily apply to their written and verbal communication of their skills. They use a range of resources to develop their knowledge and understanding that is integral to their learning and develop their understanding of working scientifically. Children reflect on previous learning and cross curricular links will be made wherever possible. They also build on prior knowledge and link ideas together, enabling them to question and become enquiry-based learners. The children's attainment is assessed each term through related assessment tasks and teacher assessment.

Assessment and reporting

Throughout the year, teachers will plan on-going assessment opportunities in order to gauge whether pupils have achieved the key assessment criteria.

- Assessment in Science is based upon knowledge and understanding, rather than achievement in English or maths.
- Formative assessment, which is carried out informally throughout the year, enables teachers to identify pupils' understanding of subjects and informs their immediate lesson planning.
- In terms of summative assessments, the results of end of year assessments will be passed to relevant members of staff, such as the pupil's future teacher.
- Parents will be provided with a written report about their child's progress during the summer term every year.
- Verbal reports can be provided at parental consultations during the Autumn and Spring terms.
- Pupils with special educational needs and disabilities (SEND) will be monitored by the special educational needs coordinator.

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Assessment will take place through the following ways

- Summative End of Unit Assessment will be undertaken termly.
- Pupil's understanding will be assessed through focussed questioning and Assessment for Learning strategies.
- Use of practical Science activities/investigations are used to assess the children's practical skills and understanding.
- Progress will be reported to parents annually.

Health and Safety

All staff will act in accordance with the schools Health and Safety policy.

Staff immediately will report any concerns to the Office Manager and Executive Headteacher, Deputy Headteacher in Heads absence.

Risk assessments are completed and carried out as required.

Equality statement

- All pupils will have access to the Science curriculum, including practical investigations.
- Gender, learning ability, physical ability, ethnicity, linguistic ability, cultural circumstances and/or any other factors, will not impede pupils from accessing all Science lessons.
- Where it is inappropriate for a pupil to participate in a lesson because of reasons related to any of the factors outlined above, the 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.
- We aim to provide more academically able pupils with the opportunity to extend their scientific thinking through extension activities such as problem solving, investigative work and research of a scientific nature.

Subject Impact

- Children retain knowledge that is pertinent to Science with a real-life context.
- Children question ideas and reflect on knowledge.
- Children work collaboratively and practically to investigate and experiment. They will have experience of carrying out a range of different types of Scientific enquiry.
- Children explain the processes they have undertaken and are able to reason scientifically.
- The learning environment across the school has technical vocabulary linked to Science displayed, spoken and used by all learners.
- Children are excited about science and are actively curious to learn more. They see the relevance and links between what they learn in science lessons and real-life situations. They are also aware of the importance and impact of Science in the world around them.
- Children have the knowledge skills and understanding to prepare them for the ever-changing world that they live in.

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