Old Dalby Church of England Primary School

Science Policy

Approved by:	Teaching Staff
Next review due by:	September 2025

Kind hearts. Open Minds. Courageous Spirits
Together, we will explore life in all its fullness.

Let us be concerned for one another, to help one another to show love and to do good.
Hebrews 10:24

Our Vision

Kind hearts. Open minds. Courageous spirits.
Together, we will explore life in all its fullness.

This is a promise that we, as a whole school, will educate children to be accepting, thoughtful and courageous. Our pupils will show kindness and love to everyone around them, our pupils will understand, accept and celebrate diversity, they will recognise injustices and speak up when they see them.

This will be achieved through a curriculum based on a skills progression of our eight Christian values. We will ensure that the pupils build the skills to live our values. Our curriculum will provide knowledge of historical and current events to provide our children with context and understanding of the values. Children will learn to challenge what they see as an injustice and seek to right this. They will be ambitious, have the courage of their convictions and be empathetic to others. Through working closely with the local community and church, we will provide a warm, nurturing environment to foster ambition, curiosity, spirituality and love.

"Let us be concerned for one another, to help one another to show love and to do good."
Hebrews 10:24

This policy is carried out within the context and spirit of the school's vision and mission statement. It supports and reinforces the aims of Old Dalby C of E Primary School, valuing all children equally whilst ensuring all children achieve their potential.

We ensure that our school:

- Motivates each child so that they develop intellectually, spiritually, physically and morally, within a secure and happy working environment
- Challenges children to stand up and speak out when they see injustice
- Provides work within a broad curriculum to develop lively, open and enquiring minds
- Helps children to acquire knowledge and skills relevant to their needs, laying the foundation for the next phase of their education
- Develops an awareness of self, sensitivity to others and acceptance (not tolerance)
- Offers equal opportunities to all pupils throughout the curriculum
- Increases the children's understanding of, and concern for, the environment and the wider world
- Identifies and monitors the progress of all pupils, ensuring that all children are enabled to achieve their full potential
- Supports the children in their development of morals and Christian values
- Facilitates the development of independent, motivated learners
- Provides a caring and friendly atmosphere, which fosters respect for each other and individual responsibility.

"Science is more than a body of knowledge; it is a way of thinking, a way of sceptically interrogating the universe." **Carl Sagan**

Science teaches an understanding of natural phenomena. It aims to stimulate a child's curiosity in finding out why things happen in the way they do. It teaches methods of enquiry and investigation to stimulate creative thought. Children learn to ask scientific questions and begin to appreciate the way in which Science will affect the future on a personal, national, and global level.

Intent

At Old Dalby, we believe that learning is a change in long term memory. We believe children learn best by having opportunities to revisit previous learning. We teach science regularly, in a sequential fashion so that the children can fully immerse themselves and have opportunities to reflect and build on prior learning. This in turn allows them to make links with learning opportunities yet to come.

The objectives of teaching Science in our school are based on an increasing understanding of the key threads of; Living things, Materials, Energy and Forces, Environmental awareness and care. Scientific enquiry and working scientifically opportunities will be embedded where appropriate.

Children will be expected;

- To ask and answer scientific questions;
- To plan and carry out scientific investigations, using equipment (including computers) correctly;
- To use a range of scientific enquiry such as pattern seeking, observation over time, research, fair testing and identifying and classifying.
- To know and understand the life processes of living things including plants, animals and humans and to know about different living things and their habitats.
- To know and understand the physical processes of materials, electricity, light, sound, and natural forces;
- To know about the nature of the solar system, including the earth;
- To gain an understanding of inheritance and evolution
- To evaluate evidence, and present their conclusions clearly and accurately.

As a school, we want:

- To develop a curriculum which promotes progress and understanding for each child.
- To develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- To develop a curriculum which allows children to develop scientific enquiry skills.
- To develop cultural capital to give our students the vital background, knowledge required to be informed and thoughtful members of our communities.
- To give children experiences in a range of topics
- To provide links with our local and wider community to make learning relevant and purposeful

Implementation

Our science curriculum design is based on principles derived from evidence through cognitive science:

- Learning is most effective with spaced repetition.
- Retrieval of previously learnt content is frequent and regular, which increases both storage and retrieval strength.

In addition to the principles, we also understand that learning is invisible in the short term and that sustained mastery takes time.

Our content is subject specific. We make intra-curricular links to strengthen schema. Reading, writing, speaking and listening skills are further promoted in Science.

Our Science curriculum is planned using the following structure;

- Long term National Curriculum expectations as set out in our whole school curriculum coverage document
- Yearly planning documents – Year A and B which set out the key substantive knowledge we want children to learn, topic by topic
- Subject medium-term plans which set out the substantive knowledge in a clear manner. These plans will also identify the disciplinary knowledge – key questions and skills, that will allow the children to learn what they need to know, as well as clearly sequenced activities and relevant assessment tasks. Assessment questions will challenge the children at working towards; yellow, working at; green and greater depth; blue.
- Knowledge organisers, containing relevant substantive knowledge, will be displayed in all classrooms and in KS2, stuck in books for children to refer to.

Skills and Techniques

- Work scientifically
- Follow a scientific enquiry approach
- Observe patterns over time
- Research
- Classify
- Collect and analyse data
- Apply mathematical skills when analysing data.

These techniques are repeated over the years so that the children can build upon and refine their skills in each area. Throughout all projects, drawing and sketching will be a common thread and will be continuously developed.

Impact

The intended impact of our curriculum is that children build semantic and procedural knowledge; Children will have a sound understanding of how Science works in the world around them. They will be given the skills to investigate questions, answering then in an accurate and

systematic way. In addition to this, it is intended that children will be able to retrace and recall the key substantive knowledge through their regular curriculum quizzes.

Assessment

Assessment judgements are informed by a pupil's progress against the objectives laid down in the school's curriculum document. We appreciate that in EYFS and Key Stage 1 the children will have a smaller general knowledge base to draw upon and in key stage 2 we will then expect to see them making more links to prior knowledge as well as drawing on the key threads to bring their understanding together.

Teachers will make a judgement of WTS (working towards the expected standard), EXP (Working at the expected standard) or GDS (working at greater depth). Judgements can be based on written work, formal and informal observations, and discussion.

Curriculum quizzes will be given to the children at the end of each completed topic unit of work. These quizzes will require them to answer questions based on the learning that has recently taken place and will be revisited regularly throughout the academic year. Teachers will keep scores and the coordinator will analyse results to assist in the making of progress judgements across the school.

Monitoring

Unit plans, knowledge organisers and medium-term plans are monitored by SLT and subject coordinator with responsibility for the curriculum. Curriculum coverage is included in the termly curriculum catch up conversations. Coordinators will undertake regular monitoring tasks in the form of 'book looks' and pupil interviews.

Community

Old Dalby C of E Primary School is proud of our community links, with the value woven through our curriculum. When possible, we like to invite members of our local community to share their experiences and knowledge by visiting classes.

Cultural Capital

Children will learn about areas of significant scientific interest such as biology, chemistry and physics. In addition, they will learn about famous scientists such as Albert Einstein, Marie Curie, Stephen Hawking and Charles Darwin.

They will also experience the following:

- Will be fully immersed in scientific enquiry throughout the school
- Meeting and talking to a scientist
- Workshops with scientists
- Experiences of industry through science
- Possible visits to scientific industries
- Annual Science fair within school to showcase our work

Resources

Useful Websites

www.stem.org.uk
www.crickweb.co.uk
www.ogdentrust.com
www.bbc.co.uk/bitesize
www.explorify.wellcome.ac.uk