Over St. John's C.E. Primary School

'Let your light shine before others.' Matthew 5:16

Science Policy

Intent

At Over St John's we want our children to be naturally curious about the world around them. Our curriculum has been developed by staff to ensure full coverage of the National Curriculum, accommodate our mixed year groups and to foster a sense of wonder about natural phenomena. We are committed to providing a stimulating, engaging and challenging learning environment. Throughout our school, children are encouraged to develop and use a range of working scientifically skills including questioning, researching and observing for ourselves. We promote and celebrate these skills. We want our children to have a broad vocabulary. Scientific language is to be taught and built upon as topics are revisited in different year groups and across key stages. We intend to provide all children, regardless of ethnic origin, gender, class, aptitude or disability, with a broad and balanced Science curriculum.

Within our school, Reception and Key Stage One children are taught in single age classes, whereas Key Stage Two children are taught across three mixed year group classes and our curriculum is designed to reflect this.

The Curriculum

The Early Years Foundation Stage

We teach science in reception classes as an integral part of the topic work covered during the year. The reception class is part of the Early Years Foundation Stage. We therefore relate the scientific aspects of the children's work in the Knowledge and Understanding of the World area of learning to the objectives set out in the Early Learning Goals (ELGs) which underpin the curriculum planning for children aged three to five. Science makes a significant contribution to developing a child's knowledge and understanding of the world, for example, through investigating what floats and what sinks when placed in water.

Key Stage 1

During Years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways;
- observing closely, using simple equipment;
- performing simple tests;
- identifying and classifying;
- using their observations and ideas to suggest answers to questions;
- gathering and recording data to help in answering questions.

This is taught through the following topics:

Plants

Animals including Humans
Everyday Materials
Seasonal Changes.

Lower Key Stage 2
During Years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking relevant questions and using different types of scientific enquiries to answer them;
- setting up simple practical enquiries, comparative and fair tests;
- making systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers;
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions;
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables;
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions;
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions;
- identifying differences, similarities or changes related to simple scientific ideas and processes;
- using straightforward scientific evidence to answer questions or to support their findings.

This is taught through:
Plants
Materials
Animals including Humans
Living Things and their Habitats
Forces and Magnets
Rocks
Light
Sound
Electricity

Upper Key Stage 2
During Years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary;
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate;
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs;
- using test results to make predictions to set up further comparative and fair tests;
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations;
- identifying scientific evidence that has been used to support or refute ideas or arguments.

This is taught through:
States of Matter
Animals including Humans
Living Things and their Habitats
Forces and Magnets
Light
Electricity
Earth and Space
Evolution and Inheritance

Implementation

Teaching and Learning

At Over St John's Primary School, we use a variety of teaching styles in Science lessons. Our principal aim is to develop children's knowledge, skills and understanding. Sometimes we do this through whole-class teaching, while at other times, we engage the children in an enquiry-based research activity. We encourage the children to ask, as well as answer, scientific questions. They have the opportunity to use a variety of data, such as statistics, graphs, pictures and photographs, as well as real objects when appropriate. They use computing in science lessons, where it enhances their learning. They take part in role-play and discussions and they present reports to the rest of the class. They engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in real scientific activities, such as investigating a local environmental problem, or carrying out a practical experiment and analysing the results.

We recognise that in all classes, children have a wide range of scientific abilities and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways which are outlined in our school adaptations document.

Resources

We have resources for all Science teaching units in the school. We keep these in a central store, where there is a box of equipment for each unit of work. The library contains a good supply of science topic books and we have laptops to support children's individual research.

Science Curriculum Planning

Science is a core subject in the National Curriculum. The school follows the 2014 Primary National Curriculum for Science as the basis of its curriculum planning, adapting it to the local circumstances of our school. We make use of the local environment in our fieldwork, although we choose a locality where the physical environment differs from that which predominates in our immediate surroundings.

We carry out our curriculum planning in Science in two phases (long-term and short-term). The long-term plan maps the scientific topics studied in each term during the key stage.

The class teacher is responsible for the short-term lesson planning for each lesson in the best way to suit their needs. These plans must follow the Knowledge and Skills document for Science.

We have planned the topics in Science so that they build on prior learning. We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit and

we also build progression into the Science scheme of work, so that the children are increasingly challenged as they move up through the school.

Impact

Science and Inclusion

At our school, we teach Science to all children, whatever their ability and individual needs. Science forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our Science teaching, we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of those pupils with Special Educational Needs, those with disabilities, those with special gifts and talents and those learning English as an additional language and we take all reasonable steps to achieve this. (For further details, see individual whole-school policies on Special Educational Needs, Disability Discrimination, Able, Gifted and Talented Children, and English as an Additional Language (EAL).)

We enable all pupils to have access to the full range of activities involved in learning Science. Where children are to participate in activities outside the classroom (e.g. a trip to a Science museum), we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

Equality and Diversity

In all classes, children have a wide range of abilities and prior knowledge of Scientific concepts. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child; work in books shows evidence of adaptations (e.g. of task, support, materials). Teachers use a variety of multi-cultural names and scenarios in tasks and stereotypes are challenged where possible. Children learn about important female figures in the world of Science, for example Mary Anning and Jane Goodall, as well as men. There are also opportunities to explore famous figures from different cultures such as Galileo Galilei and Carl Linnaeus. In Year 6, children consider the different beliefs surrounding theories of evolution and inheritance.

Assessment

Teachers will assess children's work in Science by making informal judgements during lessons. On completion of a piece of work, the teacher assesses it and uses this assessment to plan for future learning. Written or verbal feedback is given to the child to help guide progress (see Feedback and Presentation Policy). Children are sometimes given a relevant 'Wish' comment about how they can improve their work or move learning to the next step.

At the end of a unit of work, the teacher uses Sonar Tracker 'statements' to highlight where objectives have been met by each pupil. Over the course of the academic year, teachers will continue to highlight statements as they are achieved by pupils. We use this information as the basis for assessing the attainment of each child at the end of the year.

The children are part of the assessment system. At the start of each unit, they complete a pre-assessment task and rate their understanding on a scale of 0 to 10. They return to this at the end of the unit to assess their own progress.

At the end of the year, the Science subject co-ordinator completes an Attainment and Progress Summary showing assessment data for children across the school.

The Science Co-ordinator monitors children's work as per the Monitoring and Evaluation Schedule, and uses this process to ensure the expected level of achievement in Science for each age group in the school.

Monitoring and Review

The coordination and planning of the Science curriculum are the responsibility of the subject co-ordinator who also:

- supports colleagues in their teaching, by keeping them informed about current developments in science and providing a strategic lead and direction for this subject;
- gives the headteacher a review in which the strengths and weaknesses in science are evaluated and areas for further improvement are indicated.

The quality of teaching and learning in science is monitored and evaluated by the science subject leader and this is passed on to the headteacher as part of the school's agreed cycle of monitoring and evaluation.

This policy will be reviewed every two years or sooner if necessary.

Signed: *E Bettley* **Science Co-ordinator**

Signed: **E Snowdon** **Head Teacher**

Date: **December 2024**
Review Date: December 2026