

St. Godric's RC Primary Science Policy



We love, value and respect each other.



'Education must develop every child's personality, talents and abilities to the full. It must encourage the child's respect for human rights, as well as respect for their parents, their own and other cultures, and the environment.'

Article 29 of the United Nations Convention on the Rights of the Child.

Aims

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.

The objectives of teaching science are to enable children to:

- ask and answer scientific questions;
- plan and carry out scientific investigations, using equipment (including computers) correctly;
- know and understand the life processes of living things; physical processes and materials and their properties;
- evaluate evidence, and present their conclusions clearly and accurately.

Science curriculum planning

The school uses the National Science Curriculum 2014 as the basis of its curriculum planning. The curriculum has been adapted to the local circumstances of the school in that we make use of the local environment and community in our fieldwork.

We carry out our curriculum planning in science in three phases (long-term, medium term and short-term). The long-term plan maps the scientific topics studied in each term during each key stage. The science subject leader works this out in conjunction with teaching colleagues in each year group. In some cases we combine the scientific study with work in other subject areas.

Our medium-term plans give details of each unit of work for each term. Each class teacher is responsible for writing the short term plans for each lesson. These plans list the specific learning objectives and expected outcomes of each lesson.

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.

Teaching and learning style

We use a variety of teaching and learning 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. They use ICT in science lessons because 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, for example, 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:

- setting tasks which are open-ended and can have a variety of responses;
- setting tasks of increasing difficulty;
- providing resources of different complexity, matched to the ability of the child;
- using classroom assistants to support the work of individual children or groups of children.

Early Years

We teach science in Early Years as an integral part of the topic work covered during the year. Early Years is part of the Foundation Stage of the National Curriculum and we relate the scientific aspects of the children's work 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 sinks when placed in water.

The contribution of science to teaching in other curriculum areas

English

Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. Some of the texts that the children study in the literacy are of a scientific nature. The children develop oral skills in science lessons through discussions (for example of the environment) and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information.

Mathematics

Science contributes to the teaching of mathematics in a number of ways. When the children use weights and measures, they are learning to use and apply number. Through working on investigations they learn to estimate and predict. They develop accuracy in their observation and recording of events, using graphs and tables to record and support their conclusions.

Computing

Information and communication technology enhances the teaching of science in our school significantly, because there are some tasks for which ICT is particularly useful. It also offers ways of impacting on learning which are not possible with conventional methods. Software is used to animate and model scientific concepts, and to allow children to investigate processes which it would be impracticable to do directly in the classroom. Children use ICT to record, present and interpret data, to review, modify and evaluate their work, and to improve its presentation. Children learn how to find, select, and analyse information on the Internet and on other media. **(ARTICLE 17 - UNCRC)**

Personal, social and health education (PSHE) and citizenship

Science makes a significant contribution to the teaching of PSHE and citizenship. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. For example, children study the way people recycle material and how environments are changed for better or worse. Secondly, the subject gives children numerous opportunities to debate and discuss. They can organise campaigns on matters of concern to them, such as helping the poor or homeless. Science thus promotes the concept of positive citizenship. **(ARTICLE 24 - UNCRC)**

Spiritual, moral, social and cultural development

Science teaching offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the nature of our world. Science raises many social and moral questions. Through the teaching of science, children have the opportunity to discuss, for example, the effects of smoking, and the moral questions involved in this issue. We give them the chance to reflect on the way people care for the planet, and how science can contribute to the way we manage the earth's resources. Science teaches children about the reasons why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people. **(ARTICLE 13 - UNCRC)**

Cross-curricular teaching of science

Science may be taught in a cross-curricular approach across a range of subjects in order to enhance the knowledge and understanding of the broad nature of the subject. The teaching of scientific skills or knowledge may not always be through a 'science' lesson.

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. **(ARTICLE 29 - UNCRC)**

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, differentiation, so that we can take some additional or different action to enable the child to learn more effectively. Assessment against the National Curriculum allows us to consider each child's attainment and progress against outcomes. This ensures that our teaching is matched to the child's needs.

Science teaching at St. Godric's School will ensure that boys and girls will have equal opportunity to think and act scientifically. Ethnic differences are seen as an opportunity for exchange of ideas. The development of scientific attitudes, such as perseverance, curiosity and ingenuity, will contribute significantly to the personal and social education of our children.

Health and Safety

When working with tools, equipment and materials, in practical activities and in different environments, including those that are unfamiliar, pupils should be taught:

- About hazards, risks and risk control
- To recognise hazards, assess consequent risks and take steps to control the risks to themselves and to others

- To manage their environment to ensure the health and safety of themselves and others
- To explain the steps they take to control risks

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, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

Assessment for learning

Assessment of pupil's work is undertaken on a continuous basis to ensure any misconceptions are discussed with pupils and to inform future planning. Ongoing teacher assessment is carried out through observation and discussion of processes and products as well as through written work. Children will have regular opportunities for self-assessment and teacher feedback to pupils will be given orally and through constructive written comments in science books.

Science is assessed in accordance with the school's assessment policy. This enables the teacher to make an annual assessment of progress for each child, as part of the child's annual report to parents. We pass this information on to the next teacher at the end of each year.

Through collaboration with all staff, children's work is scrutinised and moderated during staff meeting time to ensure there is continuity and progression throughout the school.

Resources

We have sufficient resources for all science teaching units in the school. Items which can be used for a variety of topics are stored centrally. Teachers will have topic specific resources available in the classroom. All staff are responsible for collecting and returning necessary items to the correct place to ensure that resources are easy to find.

Monitoring and review

The monitoring of the standards of children's work and of the quality of teaching in Science is the responsibility of the subject leader. The work of the subject leader also involves supporting colleagues in their teaching, being informed about current developments in Science, and providing a strategic lead and direction for this subject in the school. The subject leader reviews and evaluates the action plan, budget and planning annually.