



All Saints CE (VC) First School, Busy Bees Nursery & Kingfisher Club

Curriculum Policy on Science

Date adopted: February 2017

By: Full GB

To be reviewed: February 2019

Vision

Science is a highly valued area of the curriculum at All Saints First School and is taught in line with the new National Curriculum. Through Science we aim to develop curiosity, enjoyment, skills and a growing understanding of scientific knowledge in all of our pupils by allowing them to raise questions and investigate the world in which they live. As a result, children gain a solid scientific knowledge and understanding as well as developing the skills necessary for testing and investigating.

We strive to ensure that:

- Teachers are knowledgeable and creative in their approach to teaching science.
- Children develop an enquiring mind, they are confident to ask questions and are enthusiastic to learn.
- Learning is purposeful, relevant to the world around them and encourages children to make cross curricular connections.
- Children are actively involved in all aspects of experimentation, which includes; planning, investigating, problem solving and reflecting.
- Science has a high profile and is valued across the school through the use of high quality resources, interactive displays, educational visits and visitors.
- Children make good progress and can build on their learning.

What is Science?

Through the study of: Physics, Biology and Chemistry, Science is the beginnings of understanding the world around us. Science helps children to explain what is occurring, predict how things will behave, and analyse causes. 'Science has changed our lives and is vital to the world's future prosperity.'

Aims

The National Curriculum for Science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics;
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them;
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Curriculum and Cross curricular links

English

Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, and spoken language.

Speaking and listening

At All Saints First School we believe that speaking and listening is a key factor in developing children's scientific vocabulary and articulation of clear and precise scientific concepts. Speaking and listening is encouraged and assisted in every lesson to encourage children to make their thinking clear, both to themselves and others. Teachers also ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

At key stage 1, pupils read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge. At key stage 2, pupils read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.

Mathematics

Science contributes to the teaching of mathematics, particularly the ways in which pupils collect, present and analyse data.

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 fund raising campaigns on matters of concern to them, such as Children in Need. Science thus promotes the concept of positive citizenship.

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.

Computing

Information and communication technology enhances the teaching of science in our school significantly, because there are some tasks for which it 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. Data loggers can be used to assist in the collection of data and in producing tables and graphs. Children use technology 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.

Teaching and learning style

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 (we do not expect all children to complete all tasks);
- grouping children by ability in the room, and setting different tasks for each ability group;
- grouping children by mixed ability to encourage peer support;
- providing resources of different complexity, matched to the ability of the child;

Inclusion and equal opportunities

Teachers should aim to give every pupil the opportunity to experience success in learning and to achieve as high a standard as possible to fulfil their potential in the following ways:

- To use medium term plans to prepare classroom activities to challenge and involve all pupils
- To be aware about different learning styles and the need to allow pupils to be able to work in their preferred learning styles for some of the time
- To use materials for teaching which avoid stereo typing, and bias towards race, gender, role or disability
- To deal with such issues clearly and sensitively if they arise
- Provide learning opportunities for Mastery level pupils that not only extend their knowledge, but deepen their existing understanding
- Differentiate work, including lines of scientific enquiry appropriately so that SEND children are able to access the concepts and ideas covered, considering alternative methods of recording
- Differentiate work appropriately for EAL children so that they are able to access the concepts and ideas covered, considering alternative methods of recording or additional resources

Foundation Stage

We teach science in Early Years as an integral part of the topic work covered during the year. As the reception class is part of the Foundation Stage of the National Curriculum, we relate the scientific aspects of the children's work to the objectives set out in the Early Years Foundation Stage Framework 2014, which underpin the curriculum planning for children aged three to five. Science makes a significant contribution to developing a child's understanding of the world, for example, through investigating what floats and what sinks when placed in water.

Resources and Safety

All resources are to be listed on lesson plans and linked specifically to individual lessons. Each class should have its own generic stock of equipment (particular equipment for lines of enquiry) that can be accessed when necessary. If you have any questions or requests for additional resources, please see Subject co-ordinator. The library contains a good supply of science topic books and there is access to computer software to support children's individual research. For safety we follow COSHH guidance "Be Safe" handbook, a copy of which can be found in school.

Assessment

LEP skills grids allow staff to focus on formative assessment by recording their judgements regarding what children can do. This is then translated into a numerical score based on the year group and the number of statements achieved by a child.

Staff are required to update LEP grids termly and use the assessments to inform planning.

Recording of work and marking

Children are expected to regularly record work, which focuses on the key content of the Science topic, in their Topic books. There should also be regular evidence of how the working scientifically skills are being embedded into the curriculum. This can and should be recorded through a variety of means such as:

- Written work
- Photographs
- Explanations of activities
- Presentations
- Project work
- Planning boards
- Investigational work

Where appropriate this work should be marked, following the school's marking policy, and include a next step question to deepen children's understanding of the subject.

The role of the Leader

The role of the Science Leader is to:

- To co-ordinate the teaching of Science within the school
- To monitor the use of the policy and medium term plans
- To ensure continuity and progression of teaching and learning throughout the school
- To arrange, in co-operation with the Head Teacher, in-service support, advice and assistance to staff
- To order and maintain resources for in use in each year group
- To provide an action plan, linked to the school's SDP to improve progress and attainment in the subject
- To support staff and inform them of courses and developments in Science following termly subject leader updates.
- To liaise with other leaders when necessary
- To support class teachers in assessment of the subjects, using LEP grids
- To carry out other duties required by the Head Teacher where related to this role
- To provide an annual report to the Curriculum Governor for Science (Rev S McKenzie)