St. John's Church of England Infant and Nursery School

Science Policy

This policy should be read in conjunction with the Teaching and learning policy

Statement of Intent

As a church school everything we do is rooted in our Christian values. At St. John's we teach the children about these core values:
Love, respect, honesty, forgiveness, friendship, courage, cooperation, peace, perseverance, trust, patience and understanding.

This is reflected in all our relationships between staff, children, parents, governors and the local community. It is reflected in how we teach, what and how our pupils learn within and beyond the classroom.

These values are fundamental in the implementation of this policy to ensure that we maintain our distinctive Christian character of which we are proud.

Science Policy	
Written by:	Louise Hare
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Approved by:	Development Committee
Date:	June 2015
Review frequency:	Every three years
Target Audience:	All Stakeholders

The governing body shall conduct the school with a view to promoting high standards of educational achievement. St John's CE Nursery and Infant School is committed to eliminating discrimination, advancing equality of opportunity and fostering good relations between different groups. These factors were considered in the formation and review of this policy and will be adhered to in its implementation and application across the whole school community.

Introduction

Science is one of the core subjects of the National Curriculum. It also contributes to the teaching of all other subjects, especially English, Maths, Computing, PSHE and Citizenship.
Science is an integral part of modern culture. It stretches the imagination and creativity of young people. Scientific skills, development of concepts and the encouragement of positive attitudes all make up science. It is a way of thinking, finding out and doing rather than a subject to be learnt.
This policy outlines the purpose, nature and management of the science taught in our school.

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 science will affect their future on a personal, national and global level.

The aims of science are to enable children:

- To develop an understanding of the fundamental scientific concepts which enable them to discover, respond to and investigate the world around them, so that they begin to understand the way things work in the world they live.
- To develop a sense of excitement and curiosity about natural phenomena.
- To develop an understanding of the nature, processes and methods of science enquiries which help them to answer scientific questions about the world around them.
- To begin to understand the uses and implications of science, today and for the future.
- To encourage them to become caring people who respect all living things and the non- living environment.
- To develop a range of approaches to communicate ideas using scientific language, drawings, charts, tables and computers.

Objectives

These are the measurable steps in the development of pupils' knowledge and understanding, skills and attitudes.

- To develop scientific ideas and concepts through first hand experiences.
- To suggest questions that can be tested scientifically.
- To handle equipment safely and effectively.
- To communicate in appropriate ways, including mathematically and graphically, and to interpret written and other materials.
- To use computing equipment.
- To use their knowledge to conduct investigations and to seek logical conclusions.
- To bring their knowledge to bear in solving problems.
- To encourage enjoyment and interest in science and not to be afraid to give their own views and opinions.

The Curriculum

Science in the Early Years Foundation Stage is taught through the area of Understanding the World.
Effective learning involves:

- Practical activities, observing and exploring.
- Interaction and communication with each other and with adults.
- Gathering information and giving ideas and explanations.
- Asking and answering questions.

Effective teaching involves:

- Practitioners teaching by modelling behaviours.
- Direct teaching of skills and knowledge.
- Practitioners interacting with and supporting children in pursuing their investigations.
- The use of carefully framed, open- ended questions.
- Introducing vocabulary to enable children to talk about their observations and to ask questions.
- Giving careful consideration to the provision and access of resources.
- Making effective use of the outdoor environment.
- Encouraging children to express opinions and ideas.
- Giving opportunities for children to record their findings.

Science in Key Stage 1 is taught following the programme of study for years 1 and 2 which ensures progression through the key stage. The programme of study can be found here: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/286349/Primary_science_curriculum_to_July_2015_RS.pdf

Science curriculum planning

Science is generally worked into topics chosen for each term. The key knowledge and skills are often taught through the wider Creative Curriculum themes and flow into different areas of the curriculum rather than just as separate science lessons.
Pupils have the opportunity to use a variety of data, such as statistics, graphs, pictures and photographs. There are opportunities to use computers in science lessons to enhance their learning. Every half term the children will be involved in at least one 'real' scientific activity, for example, researching the school environment or investigating materials. They will carry out practical experiments and analyse results. In this way we will encourage the skills of observation, classification, recording and predicting. Where possible we invite science theatre groups and other science professionals into school.

Science planning is taken from the Early Years Foundation Stage – Understanding the World and the New National Curriculum.
Staff work in year groups and key stages to plan the delivery of the lessons.
Particular attention is given to :

- Activities based on first-hand experiences that encourage exploration, observation, problem –solving, prediction, critical thinking, decision making and discussion.
- An environment with a wide range of activities indoors and outdoors that stimulates children's interest and curiosity.
- Equal opportunities in respect of gender, ethnicity, language, religion and culture and of special educational needs or disability issues.
- The different learning styles of pupils and the range of abilities of pupils within each class.
- The role of adult support for pupils in their learning.
- The assessment opportunities that will inform future planning.

Equal opportunities

It is important when planning work in science that close attention is paid to equal opportunity in respect of gender, race, the needs of the most able and those with special educational needs.
We achieve this when planning science work by considering if:

- we are promoting Science equally to both sexes;
- the material we are using is attractive to all children (e.g. illustrations in books);
- racial ethics are given consideration, especially in work connected with human body and food;
- we are catering for the needs of the most able and those with learning difficulties;
- there is an evidence of underachievement by any group, in which case positive corrective actions are initiated;
- scientific study done by children in school reflects that we live in a multi-cultural society.

Health and Safety
Class teachers are aware of the safety requirements for teaching science. Teachers are required to do a risk assessment for lessons where necessary, in order to ensure that science activities are safe and appropriate for all pupils. Each class teacher is aware of specific allergies and food intolerances of the children in their class.

The contribution of Science to teaching in other curriculum areas:

Mathematics

Science contributes to the teaching of mathematics in a number of ways. The children use weights and measures and learn to use and apply number. Through working on investigations they learn to estimate and predict. They develop the skills of classification, accurate observation and recording of events. They use numbers in many of their answers and conclusions.

Computing

The pupils' computing skills are applied and identified in the medium-term planning and links are made to Science where applicable. This involves the pupils using computers, digital cameras and digital tablet devises to: locate and research information (internet) and record findings (using text, data, tables and taking photos/videos). The children are reminded of our esafety code whenever using technology.

Assessment and recording

We assess children's work in science by making observations during lessons, investigations and during child initiated learning. Assessment opportunities are identified within our planning documentation, and evaluations are made by the class teacher after lessons and also at the end of a unit of work.

In Key Stage 1 teachers will be assessing pupils to determine which 'step' (according to the Herts Computing Scheme) best describes their attainment in using the following **skills of working scientifically**:

- **Ideas and Questions:** eg, asks simple questions and recognises that they can be answered in different ways.
- **Planning:** eg, performs simple tests .
- **Obtaining and Presenting Evidence:** eg, observes closely, using simple equipment. Gathers and records simple data to help in answering questions.
- **Considering and Evaluating Evidence:** eg, identifies and classifies. Uses their observations and ideas to suggest answers to questions.

Information about each child's attainment in science is passed to the next teacher at the end of the year. Parents are also informed of their child's progress in science in the end of year reports. Teachers make an assessment of each child's scientific attainment at the end of Key Stage 1 and these assessments are passed on to the parents and Junior Schools.

Learning Resources

Each KS 1 classroom has a basic resource box. The Foundation Stage has an outdoor trolley of science resources. A wide range of learning resources is kept in the science cupboard behind the hall curtain. Relevant equipment is taken to the class by teachers and returned after use. Teacher reference books are kept in the Pink room cupboards. Rigby Star Science resources are kept in the big book cupboards in the dining room. The Science Curriculum Leader is responsible for the maintenance of these areas. A range of software is available on laptops linked to IWB and on laptops in the trolley.

Role of the Subject Leader

It is the responsibility of the Subject Leader to:

- take the lead in policy development and review;
- ensure continuity and progression of the teaching and learning of science across the school;
- keep up-to-date on local and national initiatives and disseminate information;
- take responsibility for the purchase and organization of scientific resources;
- encourage the professional development of staff.

Staff development and training opportunities

The Headteacher discusses staff development needs and, where appropriate, these are built into the school's staff development programme. The needs of individual members of staff are identified as a result of the school's performance management programme. Staff who attend training are expected to share the useful points with other relevant staff. EYFS and KS1 teachers discuss needs with the science leader and Headteacher and ensure planned units of work are adequately resourced. There is a link governor responsible for Science and will discuss developments with the Science Leader.