ST JOHN'S
CHURCH OF ENGLAND ACADEMY

Science Policy

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DIOCESE OF SOUTHWELL & NOTTINGHAM
MULTI ACADEMY TRUST

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1. Policy Aims

This Science Policy aims to:

- Ensure consistency in the approach to the teaching of science across school.
- Set out expectations for all members of the St John's community with regards to Science.

2. Intent and Priorities.

Intent

Here at St John's, we strive to develop an enthusiasm and enjoyment of scientific learning and discovery. We recognise the importance of Science in every aspect of daily life and aim to equip our children with the knowledge and skills they need to become super scientists! Our science curriculum evokes curiosity as well as excitement and ensures progression of skills and cumulative learning. In each year group, teachers will plan to ensure the children acquire and develop the key knowledge and vocabulary needed within each unit, as well as building their enquiry and evaluative skills in line with the National Curriculum. Lessons are also structured to guarantee that our children have first-hand experiences from the beginning of their learning journey allowing for independent exploration through investigations, field trips and whole school Science days. We hope that our pupils leave our school with the scientific knowledge required to understand the uses and implications of Science, today and for the future.

Priorities

- To ensure that children are able to acquire key scientific knowledge through practical first-hand experiences; using equipment, conducting experiments, building arguments and explaining concepts confidently.
- To build a rich and varied scientific vocabulary to help articulate scientific concepts clearly and precisely.
- To foster excitement and enjoyment of scientific learning and discovery.

3. Aims and objectives

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:

- 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;
- know and understand the physical processes of materials, electricity, light, sound and natural forces;
- know about the nature of the solar system, including the earth;
- evaluate evidence and present their conclusions clearly and accurately.

4. Implementation and impact

Implementation

As a school, a variety of planning is used for science. It is usually incorporated in to and related to the overriding topic the class is studying, along with other foundation subjects. As with all subjects, the primary aim is to develop knowledge skills and understanding. We use a variety of teaching and learning styles in science lessons. They use ICT 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.
We recognise that there are children of widely different scientific abilities in all classes 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 by:

- setting common 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;
- 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.

Impact

Children will learn 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. The pupils are involved in 'real' scientific activities, for example, researching a local environmental problem or carrying out a practical experiment and analysing the results.

5. Roles and Responsibilities

Subject Lead

It is the responsibility of the science subject leader to monitor the standards of children's work and the quality of teaching in science. The science subject leader is also responsible for supporting colleagues in the teaching of science, for being informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school. The science subject leader gives the principle an annual summary report in which s/he evaluates strengths and weaknesses in the subject and indicates areas for further improvement. The science subject leader has specially-allocated time for fulfilling the vital task of reviewing samples of children's work and visiting classes to observe teaching in the subject.

Teachers

It is the responsibility of class teachers to ensure the quality of science teaching within their classroom. The class teacher is responsible for planning and teaching high quality science lessons for at least 1 hour every week. They must use the skills ladder and assessment to inform planning as well as assessing the children using the mapping grids. Class teachers are responsible for ensuring that all science objectives are being met for their cohort. They are also responsible for ensuring that equipment and resources required for lessons are ordered and available for their lessons.

Senior Lead

It is the responsibility of the Senior Leaders to support teaching staff and phase leads with the implementation and monitoring of Science across the school. They should hold teachers accountable within the teaching and assessment of science.

6. Science Curriculum Planning

The school uses the national curriculum as released in 2014 for science as the basis of its planning. The national curriculum has been adapted to the local circumstances of the school in that we make use of the local environment in our fieldwork and 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 three phases (long-term, medium-term and short-term). The long-term plan maps the scientific topics studied in each term during the key stage. Science planning is embedded within Topic planning. The science subject leader works this out in conjunction with teaching colleagues in each year group. 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. The science subject leader keeps and reviews these plans. As key stages (KS1, Lower KS2 and Upper KS2) follow the same topics, we do our medium-term planning on a one-year cycle and ensure complete coverage of the national curriculum.
We have planned the topics in science so that they build upon 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.

Foundation stage

We teach science in Foundation Stage 1 and 2 classes as an integral part of the topic work covered during the year. As Foundation 1 and 2 are 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 (EYFS) which underpin the curriculum planning for children aged three to five. Science makes a significant contribution to the objective in the EYFS of developing a child's understanding world, specifically the world strand, e.g. through investigating what floats and what sinks when placed in water or observing lifecycles of caterpillars and ladybirds. We also place a large emphasis on seasonal work and outdoor learning and have our own allotment within the FS area which enables us to grow crops and learn about plants.

7. Links with other policies

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 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.

Maths

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 accurate observation and recording of events. They use numbers in many of their answers and conclusions.

Computing

Design and technology is applied to science in the design process for investigations. Children need to have a good understanding of the properties of materials and which will be the most effective for their products.

PSHE

Design and Technology contributes to the teaching of personal, social and health education and citizenship. We encourage the children to develop a sense of responsibility in following safe procedures when completing investigations. Their work encourages them to be responsible and to set targets to meet deadlines. The children develop an understanding of how the world works through the different units, as well as, learning about humans, animals and life cycles.

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

Resources

We have sufficient resources for all science teaching units in the school and teachers let the science subject leader know if anything requires replacing. We keep these in a central store where there is a box of equipment for each unit of work. There is also a collection of science equipment which the children use to gather weather data. The library contains a good supply of science topic books and computer software to support children's individual research. The science subject leader is able to support teachers in finding suitable websites to support children in their learning. The subject leader will support staff in ordering equipment but it is the responsibility of staff to inform the subject leader if any equipment needs replacing, replenishing or ordering.

Health and Safety

In this subject, the general teaching requirement for health and safety applies. We teach children how to follow proper procedures for handling tools and equipment, as well as completing investigations. If any resources become broken during use, the Science leader needs to be informed as soon as possible.

8. Equal Opportunities in Science

We teach science to all children, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education for all children. We provide learning opportunities that are matched to the needs of children with learning difficulties. Our work in science takes into account the targets set in the children's Individual Education Plans (IEPs).

9. Assessment and Recording

We assess children's work in science by making informal judgements as we observe them during lessons. On completion of a piece of work, the teacher marks the work and comments as necessary. At the end of a unit of work s/he makes a summary judgement about the work of each pupil in relation to the 2014 National Curriculum, using the mapping grids, as to whether they are entering, developing or secure within that objective. It is an also an option that teachers may use a form of formal assessment to support their judgement after each unit, for example, the use of the Twinkl assessments. We use this as the basis for assessing the progress of each child and we pass this information on to the next teacher at the end of the year.

As is statutory, teachers at the end of key stage 1 and end of key stage 2 will assess children to ensure that a broad picture of the children's attainment is gained. In the end of year reports for each year group children's science attainment is reported on to parents.

The science subject leader views samples of children's work and records their findings in a table, they also view the evidence placed in the staff shared science folder. The science subject leader will analyse the data termly to keep a track of attainment in individual classes and year groups and will use this to raise any concerns with staff and to monitor trends.