



Science policy

Swinderby All Saints Primary School

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Swinderby All Saints Church of England Voluntary Controlled Primary School

Science Policy

Introduction

This policy outlines the expectations for science taught at Swinderby All Saints Church of England Primary School. It reflects the consensus of the whole teaching staff and it is the responsibility of the whole staff to implement this policy.

Intent

Here at Swinderby All Saints, we aim to develop pupils' natural curiosity and encourage them to confidently explore and discover the world around them, so that they develop a deeper understanding of the world we live in. Through our practical and enjoyable curriculum, we aim to inspire and excite our children and foster a thirst for knowledge. Our goal is that our children will leave this school as young scientists, with the knowledge and capabilities they need to be prepared for their future science learning.

By revisiting areas and building on prior knowledge the children will know more, so that they understand more and can therefore do more. Our science learning will develop both the children's topic-specific knowledge and also their generic, process knowledge and 'Working Scientifically' skills - which apply to all areas of science. Examples include: how to predict, how to identify variables, how to observe, how to draw meaningful conclusions, how to research efficiently and how to evaluate science investigations.'

Implementation

Before Learning

- The children's existing topic knowledge will be assessed and considered. Planned learning will be closely based on what the children already know and what they are curious about.
- At the start of each new topic, initial lessons will introduce the subject. This will allow children to quickly accrue a basic knowledge of the subject, give them the opportunity to develop curiosity in the subject and pose questions they want to find the answer to.
- Knowledge organisers will be used in each topic. These will include the key facts and vocabulary which are essential for every child to know. These will be referred to throughout the topic.

During Learning

- Each topic is launched through a memorable and exciting experience that engages learners and sets the foundations for the learning to come.
- Technical vocabulary for the topic will be explicitly taught prior to learning in which it is needed.
- At the beginning, and throughout the topic, children will consider how the science that they are learning fits with (and follows on from) what they already know.
- Subject progression through different year groups will be planned for by teachers; will be appropriately experienced by children and will be evident in books.
- All science topics will include lessons which involve scientific enquiry and investigation; where working scientifically skills are explicitly taught, referred to and explored.
- Children will be encouraged to be curious, phrase their own scientific questions and follow their own lines of enquiry.
- Children will experience input from expert visitors, take part in fieldwork, go on school trips and have outdoor opportunities to develop knowledge.
- Children will have regular opportunities to carry out extended writing in science.

- Children will have regular opportunities to use scientific equipment to give them the experience of 'being' a scientist.

We follow the national curriculum for science. Teaching and learning of science focus both on scientific knowledge and investigation skills or 'Working Scientifically' Children are taught a range of science topics throughout their time at school giving them a broad understanding of the many areas of science.

A link to the national curriculum for science can be found here:

<https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study>

Impact

We will monitor the impact of children's learning through:

- Reflection and evaluation of learning against the National Curriculum objectives as detailed in our Science Coverage Overview
- Tracking pupil knowledge through formative and summative assessments
- Assessment at the end of every session using Curriculum Maestro
- Observations of lessons by HT and Subject Leader
- Discussions with children
- Monitoring books

Key skills in other curriculum areas

English

Science contributes significantly to the teaching of English by actively promoting the skills of reading, writing and speaking and listening through discussing and analysing in group and whole class scenarios. Writing skills are embedded through reporting and recording. To further support English, scientific vocabulary is displayed in the classroom and readily available for pupils to use as and when appropriate.

Mathematics

Using weights, measuring apparatus, data handling, charts, graphs and number skills, mathematics is interwoven throughout the science curriculum.

Computing

Pupils develop their use of information and communication technology (ICT) skills through scientific research and study. Opportunities are provided for internet-based research of specific topics allowing them to find, select and analyse the information provided by the internet and other databases. They also use them to record, present and interpret data.

Inclusion

We recognise the fact that we have pupils of differing scientific ability in all our classes and so we provide suitable learning opportunities for all pupils by adapting the task as appropriate. We achieve this in a variety of ways by setting open-ended tasks that allow for a variety of responses with increasing difficulty along with grouping pupils according to their ability.

Additional or Special Education Needs & EAL pupils

For pupils with SEN, extra support is put in place where necessary to achieve the same learning outcomes. Careful consideration is given to the grouping of pupils for practical activities, considering their strengths and weaknesses to ensure that all pupils take an active part in the task and make progress. Steps, such as pictorial/vocabulary cards and instructions may be used to ensure that EAL pupils understand the activity. Where possible, teaching assistants may also be used to support individual needs.

Assessment, recording and reporting

Pre-assessments are included before the planning of each unit to ensure that the lessons are pitched correctly. Teachers then assess this information and plan their lessons accordingly. Formative assessment is undertaken through careful observations and marking. Every lesson is assessed. At the end of the unit, a final assessment will take place to allow the teacher to make a judgement about the pupils' progress. These assessments may take the form of a practical activity or a written assessment. Pupils are also encouraged to take responsibility of their own learning. At the start of lessons, learning objectives are shared and referred to at appropriate intervals. Clear steps to success are outlined to all pupils and these are then used to mark and inform pupils about appropriate next steps.

Resources

There are a range of resources to support the teaching and learning of science across the curriculum. These resources aim to be readily available in a central location with teachers having a clear breakdown of what is available to them. Teachers are expected to use resources during every lesson, where possible, to ensure that pupils develop a breadth of knowledge whilst working practically. Each classroom is to have relevant equipment, books and any other additional resources which relate to the current unit of science.

Continuity and Progression

With careful planning, a pupil's scientific knowledge and conceptual understanding gained at the start of their primary schooling will be consolidated and developed throughout their time at primary school. At Key Stage 1, pupils will be given opportunities to experience and observe phenomena whilst looking at the natural and humanly constructed world around them. By Key Stage 2, pupils will be suitably equipped to broaden their scientific view of the world today and in the future as well as deepening their understanding of a wider range of scientific ideas.

Health and Safety

Staff will carry out risk assessments prior to practical activities, where necessary. No formal documentation will be completed however, clear guidance will be sought as and when necessary. When working with tools, equipment and materials, pupils will be taught about hazards, risks and the control of them in specific situations for themselves and others. When conducting experiments, staff will ensure that pupils are clear of appropriate use and conduct to ensure that everyone is assessing risk.

Monitoring and Evaluation

The science subject leader will provide professional leadership and management for science to ensure that it meets the aims and objectives of the science curriculum. Classroom teaching will be monitored in all classes on a main term basis. This will be recorded and reported back to staff for their own professional development in line with the expectations of the delivery of the science curriculum. This will be conducted by way of monitoring a selection of the pupils' exercise books to ensure curriculum coverage and differentiation as well as short lesson observations to assess the effectiveness of resources within the classroom and the delivery of quality first teaching. Pupil voice will also form part of monitoring and assessing the provided curriculum. If applicable, and in consultation with the headteacher, further CPD training will be provided to staff.