

ST. PAUL'S
CHURCH OF ENGLAND
PRIMARY SCHOOL



ENGAGE - INSPIRE - ACHIEVE

**The Christian family of St Paul's... moving forward together.
A caring, exciting and happy school where everyone
succeeds!**

Science Policy

January 2017

Introduction:

This document is a statement of aims, principles and strategies for the teaching and learning of Science at St Paul's CE School. It is written in support of the Mission Statement and aims of the school.

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

Key stage 1

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

'Working scientifically' is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge at key stage 1

Working scientifically

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- Ask simple questions and recognising they can be answered in different ways
- Observing closely, using simple equipment
- Performing simple tests
- Identifying and classifying
- Using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions

Lower key stage 2 - years 3 and 4

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

'Working scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.

Working Scientifically

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- Asking relevant questions and using different types of scientific enquiries to answer them
- Setting up simple practical enquiries, comparative and fair tests
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings.

Upper key stage 2 - years 5 and 6

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

'Working and thinking scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read, spell and pronounce scientific vocabulary correctly.

Working Scientifically

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Using test results to make predictions to set up further comparative and fair tests
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments.

Role of the Science co-ordinator

- Take the lead in policy development and the production of Schemes of Work designed to ensure progression and continuity in Science throughout the school.
- Support colleagues in their development of work plans, assessment and record keeping
- Monitor progress and advise senior management on any action needed

- Keep up to date with developments in teaching of Science through course and feed back to colleagues
- Support staff where appropriate to organise a Science area/display in each classroom.
- Take the responsibility for the purchase and organisation of central resources for Science.

The different ways of teaching and learning in Science

- Whole class, groups, pairs, individual teaching and learning with differentiated work.
- Variety of resources e.g. CD-ROM's, pictures, photos, text, videos, ICT, internet, maths.
- School trips
- Visitors
- Alder Grange high school facilities

There is no specialist teacher of Science. It is taught by each class teacher. Homework may be used to support work. Children may be asked to research on the internet, produce a project/study.

Excellence in Science is celebrated through

- Displays and presentations
- Class assemblies
- Portfolio of work throughout school.

Strategies ensuring progress and continuity

Staff are given a long-term plan for the year with objectives. Staff meetings are used to discuss and develop ideas to ensure this continuity. Work plans are drawn up by individual teachers termly and weekly and monitored by the senior management team and co-ordinators.

Assessment and Record Keeping:

Assessment for learning is continuous throughout the planning, teaching and learning cycle. However, children are more formally assessed termly in KS1 and KS2 using a variety of methods:

- Observing children at work, individually, in pairs, in a group, and in classes.
- Questioning, talking and listening to children
- Considering work/materials / investigations produced by children together with discussion about this with them.

Children's progress is continually monitored and tracked throughout their time at St Paul's School.

Feedback to pupils about their own progress includes:

- Effective marking of written work which includes ticks, written comments, next steps, highlighted key learning and steps to success / AFL which may take place during the task.
- Self/peer evaluation

Inclusion:

In school, we aim to meet the needs of all our children by differentiation in our science planning and in providing a variety of approaches and tasks appropriate to ability levels. This will enable children with learning and/or physical difficulties to take an active part in scientific learning and practical activities and investigations and to achieve the goals they have been set. Some children will require closer supervision and more adult support to allow them to progress whilst more able children will be extended through differentiated activities. By being given enhancing and enriching activities, more able children will be able to progress to a higher level of knowledge and understanding appropriate to their abilities.

Reviewing and Reporting

Parents have the opportunity to discuss progress each term during parent's evening. They are informed about progress in Science in an annual report at the end of the school year.

Resources

Ordering and purchasing resources for Science is the responsibility of the coordinator as is the maintenance and organisation of central storage.

Outdoor Classroom

In Science, children can enhance their scientific knowledge and conceptual understanding through outdoor experiences. The 'outdoor classroom' provides a meaningful way to engage learners in practical science. The wider educational benefits of teaching and learning science through fieldwork in the natural and built environments include teamwork, motivation and its potential to influence positively the choice of science as a future subject of study.

Health and Safety:

All staff should make themselves conversant with the following;

In regard to science work in school all teachers will be conversant with safe practice and where appropriate reminders will be given to children about potential hazards and care of the equipment they are using. It is important to have a balanced approach to risks in experiments and reference to the guidance in 'Be Safe' or consultation with the Head teacher or Science Co-coordinator should help with any doubts. Any educational visits will have been planned with due regard to the school policy on taking children on outings.

POLICY REVIEW

This policy will be ratified by the Governing Body in January 2017

Signed by Mr W Aitkin (Chair of Governors)

Date January 17

This policy will be reviewed on or before the following date: January 2018