



GREAT ECCLESTON COPP
CHURCH OF ENGLAND
PRIMARY SCHOOL



SCIENCE POLICY

Reviewed and Updated on July 2019

Copp Cares

"Let us love, not in word, but in truth and action." (1 John 3:18)

Talk to me and I will listen, show me and I will remember,

Involve me and I will learn, encourage me and I will thrive.

Copp, the village school, where everyone is special and where God will help us grow.

AIMS

The Science curriculum will stimulate interest and curiosity in the world around us, through developing knowledge and understanding of scientific ideas; encouraging the children to think critically, developing skills in prediction, testing, analysing and arriving at scientifically based conclusions.

Skills development will be acquired through a range of scientific enquiry following the National Curriculum requirements of study at KS1 and KS2, taught through allotted science lessons, and monitored by class teachers and the Science Leader.

Practical exploration and investigation (working scientifically) is a key component of the science curriculum in order that pupils learn to ask pertinent questions and can test their own conclusions about scientific processes or fair tests against accepted opinion. Much of our science curriculum is learned outside and, as we are at the heart of a rural community, we make full use of the natural world around us to engage our pupils in science.

Science activities at Foundation Stage are part of the early learning goals, mainly in the area of "Knowledge and Understanding of the World". Emphasis will be placed on exploring scientific concepts through play activities.

Science lessons will be adapted by individual teachers to cater for a range of abilities, including children with special educational needs and those highlighted as gifted and talented. Classroom organisation will vary with the approach used - activities may include whole class, group and individual work.

Science offers a range of contexts for the development of maths, English and ICT skills and contributes to the wider curriculum, particularly through its links with PSHE (see appendices for additional information).

Guidelines on health and safety will be noted and followed by staff.

Practical investigation will be encouraged and a variety of recording techniques (photographs, video and audio recordings, models, drawings, notes, floor books) will be used. Children will be encouraged to work independently and to test their own conclusions about scientific processes or fair tests against accepted opinion.

To support, engage and challenge our more able children, or those who have a keen interest in science, we organise lunchtime sessions with the "Mad Scientist".

NATIONAL CURRICULUM COVERAGE

Where possible, science is taught within themes in order to make it a real-life learning process and lessons are differentiated appropriately, although there are sometimes concepts which need to be taught discretely.

Children in the foundation stage are taught the scientific elements of the foundation stage document through the Early Learning Curriculum: Knowledge and Understanding of the World.

The principal focus of science teaching in key stage 1 is to enable children 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.

The principal focus of science teaching in lower key stage 2 is to enable children 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.

The principal focus of science teaching in upper key stage 2 is to enable children 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. Children 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 scientifically' will always be taught through, and clearly related to, the teaching of the Science content in the Programmes of Study.

ASSESSMENT and MONITORING

- At Key Stage 1 and Key Stage 2, children will be assessed on their understanding of the scientific concepts outlined in each unit of work. Assessment is done through KLIPs (Key Learning Indicators of Performance) which have been tailored to the needs and aspirations of the pupils; this assessment is backed up by knowledge testing within units, so that misconceptions can be addressed effectively. Throughout each unit, staff will indicate which specific KLIPs objectives the child has achieved. Overall attainment will be judged against the criteria of whether pupils are working towards, at or beyond age related expectations.

- 'Working scientifically' will be assessed in an ongoing manner during the course of each unit. It is based on observations and discussions with pupils, as well as analysing work in books.
- Scrutiny of work by the Science Leader will take place and progression throughout the school will be evaluated.
- Lesson observations by the Science Leader will monitor the effectiveness of teaching and learning in science throughout the school.

PRIMARY/SECONDARY LIAISON

St. Aidan's, Hodgson and Garstang High both offer opportunities for KS2 pupils to visit for science workshops.

RESOURCES

Resources for science are based mainly in the Discovery Room. Materials and reference books specific to particular age groups may be kept in the classroom.

Each year, staff will be asked to indicate any further resources needed. These will be collated by the Science Leader.

HEALTH & SAFETY

The School's Health & Safety Policy for teaching Science is largely contained within 'Be Safe! Health & Safety in Primary School Science and Technology' (Third edition 2001 Association for Science Education). A copy is kept in the staff room.

When children are handling and using food during science lessons, they are aware that this food is not for consumption and it is disposed of in an environmental and safe manner.

KINDS OF ENQUIRY

You can find out the answers to scientific questions by:

Exploration

Observe it yourself. You may need equipment to observe or measure it over some time. It may be 'remote' observation by studying a film.

Fair-Testing

A controlled experiment. Do a fair-test enquiry. Alter one factor. Observe or measure how this affects another factor.

Identification and Classification

Match the thing in your question to something with a name. This may be real object or a description in a book. Or allocate your specimen to a group, or arrange the things in-groups.

Pattern-seeking

Do a survey and look for patterns in the information that has been collected.

Reference

Look it up in an information book or computer, or ask somebody who knows about it. You must be able to rely on the authority of the source!

Technology

Make something or invent a system to solve the problem.

Test an explanation; theory or model

Try out an explanation (your own or somebody else's) and see whether it works or makes sense.

The non-scientific questions in this activity can be answered by:

Opinion

This is someone's personal feeling. The question is not a scientific question. It cannot be answered by scientific enquiry.

However, "What opinions do people hold?" is a scientific question which you could try to answer by a survey (pattern-seeking) type of enquiry.

PSHE

There are many opportunities within the units for children's work in Science to contribute to their PSHE education.

Children learn:

- that people and other living things have needs, and that they have responsibilities to meet them;
- what improves and harms their local, natural and built environments and some of the ways people look after them;
- how to make simple choices that improve their health and wellbeing;
- about the process of growing from young to old and how people's needs change;
- the names of the main parts of the body;
- that all household products, including medicines, can be harmful if not used properly;
- to identify and respect the differences and similarities between people;
- to recognize, as they approach puberty, how people's emotions change at that time;
- what makes a healthy lifestyle, including the benefits of exercise and healthy eating;
- that bacteria and viruses can affect health, and that following simple, safe routines can reduce their spread;
- about how the body changes as they approach puberty;
- which commonly available substances and drugs are legal and illegal, and their effects and risks.