



ROMAN ROAD PRIMARY SCHOOL SCIENCE POLICY

Aims OF SCIENCE POLICY

The aim is for all teachers and learners.

Our Science Policy follows The National Curriculum 2014 for Science Guidelines and 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.

PURPOSE OF STUDY-WHY TEACH SCIENCE?

At ROMAN ROAD PRIMARY SCHOOL we value and teach Science because:

Science education provides foundations for understanding the world. Science has changed our lives and is vital to the world's future prosperity. Through building key foundational knowledge and concepts, pupils should be encouraged to recognize the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how key knowledge and concepts can be used to explain what is occurring, predict how things will behave, and analyse causes. This understanding should be consolidated through their appreciation of applications of Science in society and the economy.

In teaching Science we are developing in our children:

- a positive attitude towards Science and an awareness of its fascination;
- an understanding of Science through a process of enquiry and investigation;
- confidence and competence in scientific knowledge, concepts and skills;
- an ability to reason, predict, think logically and to work systematically and accurately;
- an ability to communicate scientifically;
- the initiative to work both independently and in co-operation with others;
- the ability and meaning to use and apply science across the curriculum and real life.

PLANNING

School curriculum

The programmes of study for Science are set out year-by-year for Key Stages 1 and 2. We are however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, we have the flexibility to introduce content earlier or later than set out in the programme of study and may introduce key stage content during an earlier key stage if appropriate.

Teachers will base their planning on the programmes of study for their relevant year groups using our own school's scheme of work. Science is timetabled to be taught for a one whole afternoon (2 hours) every week-children have plenty of time to develop their enquiry skills.

Scientific knowledge and conceptual understanding

The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage.

Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary. They should also apply their mathematical knowledge to their understanding of Science, including collecting, presenting and analysing data.

The nature, processes and methods of science

'Working scientifically' specifies the understanding of the nature, processes and methods of Science for each year group. It should not be taught as a separate strand.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key Stage 1

The main 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. Pupils should read and spell scientific vocabulary at a level consistent with their reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2 – Years 3 and 4

The main 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 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' must **always** be taught through and clearly related to substantive Science content in the programme of study.

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

Upper Key Stage 2 – Years 5-6

The main 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 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. Pupils should read, spell and pronounce scientific vocabulary correctly.

'Working and thinking scientifically' must **always** be taught through and clearly related to substantive Science content in the programme of study.

ASSESSMENT

This is achieved through:

- marking work;
- discussing with pupils and teachers
- observation of pupils and teachers through learning walks
- half termly teacher's assessments
- book monitoring
- data analysis
- KWL self-assessment grids.

MONITORING AND EVALUATION

The Subject Leader follows the School Self Evaluation for Subject Leaders' Guidelines and is achieved through;

- monitoring and evaluation of pupils' work;
- learning walks;
- monitoring of planning

MARKING WORK

Developmental marking should be done on a weekly basis with the inclusion of a scientific vocabulary being corrected. Refer to the whole School Marking Policy for more details.

Learning resources and budget management

Learning resources are kept in the science resource area. The resources are easily accessible for all members of staff and are returned at the end of each half term. The Science coordinator, as well as, the accessing staff is responsible for the maintenance of these areas.

The scheme of work covers training the pupils in the safe and considerate use of animals, plants and equipment. They should be taught not to be careless and to use consumables efficiently.

The financial commitment for Science will differ each year, details of which will be found in the SDP. However, in order that staff can deliver the Science Curriculum effectively, the following financial commitment is envisaged;

- > An annual maintenance budget
- > A budget for staff development
- > Bids for specialised amounts of funding

A financial commitment for Science will be presented each year to the Head Teacher and Deputy Head Teacher for discussion and their approval.

Celebrations of Success and Display Policy

It is important that children's success in Science is acknowledged and celebrated appropriately. This can be done through the careful displaying of Science work in classrooms and by displays of work if appropriate in the school (i.e. in halls, corridors and other communal areas).

Educational visits

Visits into school by speakers and educational visits outside school are integral to broad and balanced curriculum and can be recorded through photographs and these can then be used as part of a display in school and upload on the school website.

INCLUSION and Equal Opportunities and Differentiation

We fully endorse the above statutory inclusion statement, believing that all children at ROMAN ROAD PRIMARY SCHOOL should have equal access to Science so that they may have the opportunity to progress and demonstrate achievement irrespective of ability or special educational needs.

Where special educational needs are identified, teachers will endeavour to provide such pupils with appropriately challenging work at each key stage, in line with the requirements of the NC.

Where pupils have special educational needs which are not identified as being learning difficulties, but require other special provision (e.g. the use of technological aids in practical and written work) then we will as a school, endeavour to make appropriate provision for such children (see NC Science Document 'Inclusion' pages 60- 68 for further details).

It is important when planning work in Science that the teacher pays close attention to equal opportunity in respect of gender, race and creed, English as second language learners and the needs of the more- able children and those children with special educational needs (see also the section entitled (SEN).

Points for consideration by teachers when planning Science work are:-

- > Am I promoting Science equally to both sexes?
- > Is the material I am using attractive to all children – particular care should be taken when using illustrations in books and avoiding stereotyping
- > Take care when planning work so that racial ethics are given consideration, especially in work connected with the human body and food.
- > Am I catering for the needs of the more able children and those with learning difficulties? Will the work provided enable all children to feel that they are achieving and progressing?
- > If there is evidence of underachievement by any group, positive corrective action must be initiated.

> Are the contents reflecting our multi-cultural society and relating to other countries

Essential Health and Safety Information

It is important that all teachers are aware of the responsibility they have regarding health and safety both inside and outside the classroom. Teachers need to take account of both the children's and their own health and safety when involved in Science activities. See Scheme of Work for specific details.

Further information on health and safety issues and safety points specific to individual science investigations, teachers should refer to the following sources;

1. Science NC Document
2. CLEAPPS booklet – on line (displayed in the staffroom)
3. Following COSHH guidance 'Be Safe'.

Homework Policy and Parental Involvement

Following the guidelines in the whole School Policy on Parental Involvement in their Children's Education, parents may be involved in class based work if they can offer a particular skill or extend and compliment the class teacher's skills and knowledge. Science activities are sent home annually in line with Science week to support parents in raising science capital. Children encouraged to take part in science competitions within the school when relevant. Vocabulary booklets have been created for all foundation subjects to support parents and highlight key vocabulary within each unit in order to aid their children.

Induction for New Staff and Other Assistants

The Science coordinator will ensure that new members of the teaching staff and other assistants have copies of the Science Policy and Scheme of Work and understand how they are used. The Science coordinator will also ensure that new members of staff are aware of the science resources available and have a clear understanding of the essential health and safety information contained within this Science Policy.

Role of the Co-ordinator

The role of the Science coordinator is:

- > To co-ordinate the teaching of science within the school
- > To be involved in the induction of new staff
- > To monitor the use of the policy and scheme of work
- > To ensure continuity and progression of the teaching and learning of Science across the key stages and the school

- > To make changes to the policy and scheme of work if necessary, following a review with the
- > To order and maintain resources
- > To manage the Science budget
- > To make staff aware of changes/thinking in Science
- > To support staff who are less confident with Science
- > To make staff aware of Science courses on offer and encourage them to attend
- > To provide where necessary, staff training and development
- > To show by example good Science practice.

Suggestions from other members of staff as to how the coordinator can more effectively fulfill their role will be welcome at all times.