



Appleton C of E Primary School Policy for Science

Purpose of Study

Science is a systematic investigation of the physical, chemical and biological aspects of the world which relies on first hand experiences and on other sources of information. The scientific process and pupils' problem-solving activities will be used to deepen their understanding of the concepts involved. The main aspects of science to be studied will be determined by the programmes of study of the New National Curriculum.

Through science pupils at Appleton C of E Primary School will continue to deepen their respect, care and appreciation for the natural world and all its phenomena.

Aims

- to develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life
- to build on pupils' curiosity and sense of awe of the natural world
- to use a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science
- to introduce pupils to the language and vocabulary of science
- to develop pupils' basic practical skills and their ability to make accurate and appropriate measurements
- to develop pupils' use of computing in their science studies
- to promote a 'healthy lifestyle' in our pupils

Objectives

The following objectives derived from the above aims will form the basis of our decisions when planning a scheme of work. Assessment will also be related to these objectives:

To develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life.

- to develop a knowledge and appreciation of the contribution made by famous scientists to our knowledge of the world including scientists from different cultures
- to encourage pupils to relate their scientific studies to applications and effects within the real world
- to develop a knowledge of the science contained within the programmes of study of the New National Curriculum

To build on pupils' curiosity and sense of awe of the natural world.

- to develop in pupils a general sense of enquiry which encourages them to question and make suggestions

- to encourage pupils to predict the likely outcome of their investigations and practical activities

To use a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science.

- to provide pupils with a range of specific investigations and practical work which gives them a worth-while experience to develop their understanding of science
- to develop progressively pupils' ability to plan, carry out and evaluate simple scientific investigations and to appreciate the meaning of a 'fair test'

To develop the ability to record results in an appropriate manner including the use of diagrams, graphs, tables and charts

- to introduce pupils to the language and vocabulary of science
- to give pupils regular opportunities to use the scientific terms necessary to communicate ideas about science
- to develop pupils' basic practical skills and their ability to make accurate and appropriate measurements within practical activities that give pupils opportunities to use a range of simple scientific measuring instruments such as thermometers and force meters and develop their skill in being able to read them

To develop pupils' use of computing in their science studies

- to give pupils opportunities to use computing (including Beebots, video, digital camera, data logger) to record their work and to store results for future retrieval throughout their science studies
- to give pupils the chance to obtain information using a range of resources

Principles of teaching and learning

Differentiation and Additional Educational Needs

The study of science will be planned to give pupils a suitable range of differentiated activities appropriate to their age and abilities. Tasks will be set which challenge all pupils, including the more able. For pupils with SEN the task will be adjusted or pupils may be given extra support. The grouping of pupils for practical activities will take account of their strengths and weaknesses and ensure that all take an active part in the task and gain in confidence.

Breadth and Balance

We will ensure that all staff, including those in a supportive role, have a clear idea of the concepts and skills to be taught. We will select the content to ensure a balanced coverage of the New National Curriculum programmes of Study including the use of the Rising Stars scheme of work and assessment materials.

Variety

Pupils will be involved in a variety of structured activities and in more open-ended investigative work:

- activities to develop good observational skills

- practical activities using measuring instruments which develop pupils' ability to read scales accurately
- structured activities to develop understanding of a scientific concept
- open ended investigations

On some occasions pupils will carry out the whole investigative process themselves or in small groups.

Cross-curricular skills and links

Wherever possible science work will be related to the real world and everyday examples will be used. Science pervades every aspect of our lives and we will relate it to all areas of the curriculum. We will also ensure that pupils realise the positive contribution of both men and women to science and the contribution from those of other cultures. We will not only emphasise the positive effects of science on the world but also include problems, which some human activities can produce.

Continuity and Progression

Foundation Stage pupils investigate science as part of Understanding of the World. By careful planning, pupils' scientific skills and conceptual understanding gained at Key Stage 1 will be consolidated and developed during Key Stage 2.

Pupils in Key Stage 1 will be introduced to science through focused observations and explorations of the world around them. These will be further developed through supported investigations into more independent work at Key Stage 2. The knowledge and content prescribed in the New National Curriculum will be introduced throughout both key stages in a progressive and coherent way.

Equality of Opportunity

All children have equal access to the science curriculum and its associated practical activities. The SLT, Class Teachers and TAs at Appleton C of E Primary School are responsible for ensuring that all children, irrespective of gender, learning ability, physical disability, ethnicity and social circumstances, have access to the whole curriculum and make the greatest possible progress. Where appropriate, work will be adapted to meet pupils' needs and, if appropriate, extra support given. More able pupils will be given suitably challenging activities. Gender and cultural differences will be reflected positively in the teaching materials used.

All children have equal access to the Science Curriculum, its teaching and learning, throughout any one year. This is being monitored by analysing pupil performance throughout the school to ensure that there is no disparity between groups.

Health and safety

Pupils will be taught to use scientific equipment safely when using it during practical activities. Class Teachers, Teaching Assistants and the Subject Coordinators will check equipment regularly and report any damage, taking defective equipment out of action.

Assessment for Learning, recording and reporting

Teachers will assess children's work in science by making informal judgements during lessons. On completion of a piece of work, the teacher assesses it, and uses this assessment to plan for future learning. Written or verbal feedback is given to the child to help guide his/her progress. Older children are encouraged to make judgements about how they can improve their own work.

At the end of a unit of work s/he makes a summary judgement about the work of each pupil in relation to the New National Curriculum grading scheme. The teacher records the attainment grades in a mark book. We use these grades 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.

Much of the work done in science lessons is of a practical or oral nature and, as such, recording will take many varied forms thus making marking different. It is, however, important that written work is marked regularly and clearly, as an aid to progression and to celebrate achievement. When appropriate, pupils may be asked to self-assess or peer assess their own or other's work.

Resourcing

In order to encourage an investigative approach to learning all classrooms contain sufficient basic equipment to allow simple investigations, observations and measurements to be carried out in small groups. The science Subject Coordinators will see that this level of resourcing is maintained and will administer the allocated budget for science. More specialist pieces of equipment and those posing a potential safety risk will be held centrally and staff access when required. Teaching materials and background information on science are kept in the library and the science cupboard.

Review

The Science Subject Coordinators will monitor classroom teaching in all year groups according to the monitoring schedule. The effectiveness of the science curriculum will be evaluated in discussions with the Headteacher, Key Stage Phase Leaders and the Science Subject Coordinators. Priorities for in service support and external review will be established.