

## Barlby Bridge CP Science Policy



### Rationale

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 National Curriculum 2014.

### 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 extend the learning environment for our pupils via our environmental areas and the locality

### 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 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 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 ICT in their science studies
- to give pupils opportunities to use ICT (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 the internet.
- Principles of teaching and learning

### Guidelines

- Long term planning for science will be based on the North Yorkshire Science Scheme of Learning (NYSSoL) Long Term Plans.
- Medium term planning will take place every half term, using the appropriate North Yorkshire Science Topic Teaching and Assessment Sheets as a starting point
- Differentiation of activities will be made in the weekly/daily planning as appropriate to the pupils being taught based upon their prior knowledge, understanding and skills.
- The strong practical mathematical links with practical work will be seen as an opportunity for teaching and should be explored at the planning stage.
- The assessment of knowledge and skills will be planned for as part of the teaching process. (See assessment policy). Summative assessment will take place at the end of each term, based on teacher assessment.
- Science will usually be taught by the class teacher, but arrangements for teachers to team teach, or exchange classes to provide a mutual exchange of expertise can be negotiated with the Headteacher.
- The North Yorkshire adopted guidelines for safety - ASE 'Be Safe' 4th Edition are a **minimum** requirement of health and safety standards. Teachers should notify the science subject leader of any suggested amendments. Free H&S advice is available from the CLEAPSS hotline 01895 251496
- Pupils will normally be organised into small groups and encouraged to work co-operatively for science work. The group size will be determined by the age, task and ability of the pupils.
- A wide range of teaching and learning styles will be used, including the Curriculum 2014 'five types of enquiry', with an emphasis on investigative, rather than illustrative practical activities.
- Pupils will be taught to use a wide range of appropriate recording methods, which will include the use of Modern Technologies at both Key Stage 1 and Key Stage 2.
- Displays of science work will be used to emphasise and raise the profile of science in the school. Where possible, interactive displays will be planned for other pupils to explore.
- Equal opportunities in science will be given to all pupils. (See equal opportunities policy).
- Resource boxes linked to the themes of the 'Science Topics' are kept in the store.

## 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

### 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.

### Relevance

Wherever possible science work will be related to the real world and everyday examples will be used.

### Cross-curricular skills and links

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. Children are encouraged to investigate through practical experience; teachers guide the children and plan opportunities that allow the children to experience and learn whilst experimenting for themselves. By careful planning, pupils' scientific skills and knowledge 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 supportive investigations into more independent work at Key Stage 2. The knowledge and content prescribed in the 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 Barlby Bridge 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 and Teaching Assistants will check equipment regularly and report any damage, taking defective equipment out of action. Where there is the possibility of any perceived hazards during scientific enquiry, a simple risk assessment will be carried out for all practical activities these will be reported to the Head who will determine the appropriateness of said activity.

### Assessment for Learning, recording and reporting

Throughout the school teachers will assess whether children are working at/above or below the expected level for their age based on their understanding and application of the content of the National Curriculum 2014. Progress and attainment is reported to parents through parents' evenings and end of year reports.

### Marking (see policy)

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 and in line with the school marking policy. When appropriate, pupils may be asked to self-assess or peer assess their own or other's work.

Marking for improvement comments in a child's book must be relevant to the learning objective to help children to better focus on future targets.

### Resourcing

Specialist pieces of equipment and those posing a potential safety risk will be held centrally and staff access when required.