**Scotforth St Paul’s CE Primary and Nursery School Science Policy**

**Introduction**

This policy outlines the purpose, nature and management of the science taught and learnt in our school. It has been adopted by the staff of Scotforth St Paul’s CE Primary and Nursery School. This policy outlines the guiding principles by which this school will implement science in the National Curriculum. It is reviewed periodically.

**Rationale for Science teaching**

Science should be concerned with stimulating the children’s interest and providing the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world’s future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. We aim for our children to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. We encourage our children to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

**Aims for the teaching of Science**

At Scotforth St Paul’s Primary and Nursery School our intention is to provide quality teaching and learning of science. We aim:

* To encourage a sense of interest and enjoyment in all pupils.
* To enable the acquisition of a wide range of knowledge, understanding, skills and attitudes.
* To develop an enquiring mind and a scientific approach to solving problems.
* To explore how and why things happen.
* To understand the world in which we live and develop sensitivity and respect for the environment.
* To encourage safe and careful practical work.

**Attitudes and skills**

We also seek to encourage our children to develop the following skills to support the investigative approach to science:

* Observing
* Discussing and questioning
* Classifying
* Measuring
* Recognising patterns
* Predicting
* Fair testing
* Interpreting
* Communicating

The study of science provides rich opportunities to develop the following attitudes:

* Curiosity
* Open-mindedness
* Perseverance
* Tolerance
* Co-operation
* Responsibility
* Critical awareness
* Originality
* Questioning
* Reasoning

**The Role of the Science Co-ordinator is:**

1. Taking the lead in the development, evaluation and amendment of schemes of work as and when necessary;
2. Acting as a consultant to colleagues on resources, visits, visitors, curriculum changes, classroom teaching and learning ideas;
3. Monitoring and evaluating pupils’ work, pupils’ views about the subject, displays and teachers’ planning;
4. Writing and evaluating a School development plan;
* Auditing resources and ordering resources when needed;
* Keeping up to date with developments in science and disseminating information to the rest of the teaching staff;
* Leading staff meetings as appropriate;
* Attending relevant in-service training and prompting others about relevant training.

**Early Years Foundation Stage**

Science in the Foundation Stage is taught under the umbrella of ‘Knowledge and Understanding of the World’ from the EYFS. The children are supported in developing the knowledge, skills and understanding that helps them to make sense of the world. The children learn about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes. They are beginning to gain knowledge and understanding of the world through:

* Photographs
* Listening to stories that help them make sense of different environments
* Role play activities
* Discussing events in their own personal lives
* Sequencing events to gain a sense of time
* Opportunities to record findings by, e.g. drawing, writing or making a model.

**Key Stage 1**

Pupils in years 1 and 2 should explore the world around them and raise their own questions. They should experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions. They should use simple features to compare objects, materials and living things and, with help, decide how to sort and group them, observe changes over time, and, with guidance, they should begin to notice patterns and relationships. They should ask people questions and use simple secondary sources to find answers. They should use simple measurements and equipment (for example, hand lenses, egg timers) to gather data, carry out simple tests, record simple data, and talk about what they have found out and how they found it out. With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language. These opportunities for working scientifically should be provided across years 1 and 2 so that the expectations in the programme of study can be met by the end of year 2.

**Lower Key Stage 2**

Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys. They should begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. They should help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used. They should learn how to use new equipment, such as data loggers, appropriately. They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data. With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done. They should also recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations. Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences. These opportunities for working scientifically should be provided across years 3 and 4 so that the expectations in the programme of study can be met by the end of year 4.

**Upper Key Stage 2**

Pupils in years 5 and 6 should use their science experiences to: explore ideas and raise different kinds of questions; select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. They should use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. They should make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately. They should decide how to record data from a choice of familiar approaches; look for different causal relationships in their data and identify evidence that refutes or supports their ideas. They should use their results to identify when further tests and observations might be needed; recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact. They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time. These opportunities for working scientifically should be provided across years 5 and 6 so that the expectations in the programme of study can be met by the end of year 6.

**Cross Curricular links in Science**

**Literacy**

Science contributes significantly to the teaching of Literacy in our school by actively promoting the skills of reading, writing, speaking and listening. Some of the texts that are used in Literacy lessons are scientific in nature. Children develop their speaking and listening skills through discussing scientific questions or presenting their findings to the rest of the class. They develop their writing ability by composing non-fiction reports.

**Numeracy**

Science teaching contributes to the teaching of mathematics in a variety of ways. Children use equipment to measure and gather data. They learn to interpret information presented in graphical or diagrammatic form and look for changes, similarities and patterns in data and use these to draw conclusions.

**Computing**

We use computing in science teaching where appropriate. Children use computing in science to enhance their skills in data handling and in presenting written work, and they research information using the Internet. Each teacher ensures it is used as a teaching tool where appropriate, and provides opportunities for children to also use it.

**P.E**

In P.E we raise awareness of how our bodies work and look at the effects exercise has.

**Personal, Social and Health Education (PSHE)**

Science contributes significantly to the teaching of personal, social, citizenship and health education. Children develop self-confidence by having opportunities to explain their views on many social questions. They learn how to recognise and challenge stereotypes. They learn how society is made up of people from different cultures and start to develop tolerance and respect for others. They understand and show British Values.

**Recording of Science**

Pupils are encouraged to record their work using a variety of methods and then communicate their findings to others. These may include written or verbal reports, charts, collage, models, pictures and role play activities. Examples of children’s work will be retained to provide evidence of on-going science, including photographic evidence of displays, presentations, visiting speakers and visits.

**Marking**

Feedback to pupils should be provided on their attainment against the objectives of science. Pupils are encouraged to improve their own learning performance through the school marking policy. Feedback to the children will be verbal at times and written at other times.

**Assessment**

Children’s progress is monitored through observation and by using planning and learning objectives. Teachers make informal judgements as they observe the children during lessons. When the children complete a piece of work it is marked and commented on by the teacher. It may also be marked by the child or one of their peers. Science is included in the end of year report to parents.

**Monitoring and Evaluation**

Science will be monitored throughout the school by the Science Co-ordinator who will be responsible for gathering samples of curriculum work.

The Science Co-ordinator will also monitor books and schemes of work to ensure that the Programmes of Study are being effectively taught and match the needs and abilities of the pupils.

**Inclusion**

**Equal Opportunities**

* We plan our classroom activities to challenge and involve all pupils appropriately, according to age and capability, ethnic diversity, gender and language background
* We are aware of different learning styles and the need to allow pupils to be able to work in their preferred learning styles for some of the time
* We use materials for teaching which avoid stereo-typing, and/or bias, towards race, gender, role or disability
* We deal with such issues clearly and sensitively when they arise
* Please see SEN/D and Inclusion Policy and Equality Policy.

**Differentiation**

At our school we teach science to all children, whatever their ability. Through our science teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child’s different needs. We use a range of strategies to support pupils. A few of these, particularly relevant to science are:

* The use of appropriate vocabulary at varying levels of difficulty during lessons
* Modified text passages as expected in other curriculum areas
* Different levels of written or oral questions for pupils investigating photographic or other visual material
* Careful use of support for pupils with English as an additional language

**For our gifted and talented pupils, we expect:**

* Teachers to provide teaching and learning experiences that encourage pupils to think creatively, explore and develop ideas, and try different approaches. Pupils should be encouraged to set their own questions, offer ideas, suggest solutions or explanations, and reflect on what they have heard, seen or done in order to clarify their thoughts.
* Greater independence in working, e.g. a pupil to be able to carry out their own simple scientific enquiry.
* To avoid giving gifted pupils additional writing tasks and encourage them instead to communicate their understanding in a variety of ways, giving them responsibility for choosing and evaluating the most appropriate method.
* To provide opportunities within science for pupils to develop their skills in other areas, such as intrapersonal skills (for example, opportunities to use initiative), and interpersonal skills (for example, leadership and group membership). These opportunities also relate to the key skills of working with others and improving own learning and performance.

Please see our Gifted and Talented Policy.

**Health and Safety**

Science poses a number of potential dangers in the classroom as a result of its practical nature. Children are made aware of the safety requirements and encouraged to develop an awareness of safety as they undertake practical work. Teachers and Teaching Assistants will check equipment regularly and report any damage, taking defective equipment out of action. A simple risk assessment will be carried out for practical activities and any perceived hazards will be reported to the Head who will determine the appropriateness of said activity. Safe practice must be promoted at all times. Please refer to schools’ health and safety policy and specific risk assessments. Particular attention must be given to avoiding the use of anything that aggravates individual pupils’ allergies.

**Resources**

Resources are centrally stored. All staff may access them, but they are responsible for their prompt and orderly return. Library loan topic boxes may also be ordered via the SLA with Lancashire Libraries.

Resources held include artefacts, primary and secondary source documents, photographs, video/DVD and audio tapes/CDs and computer software.