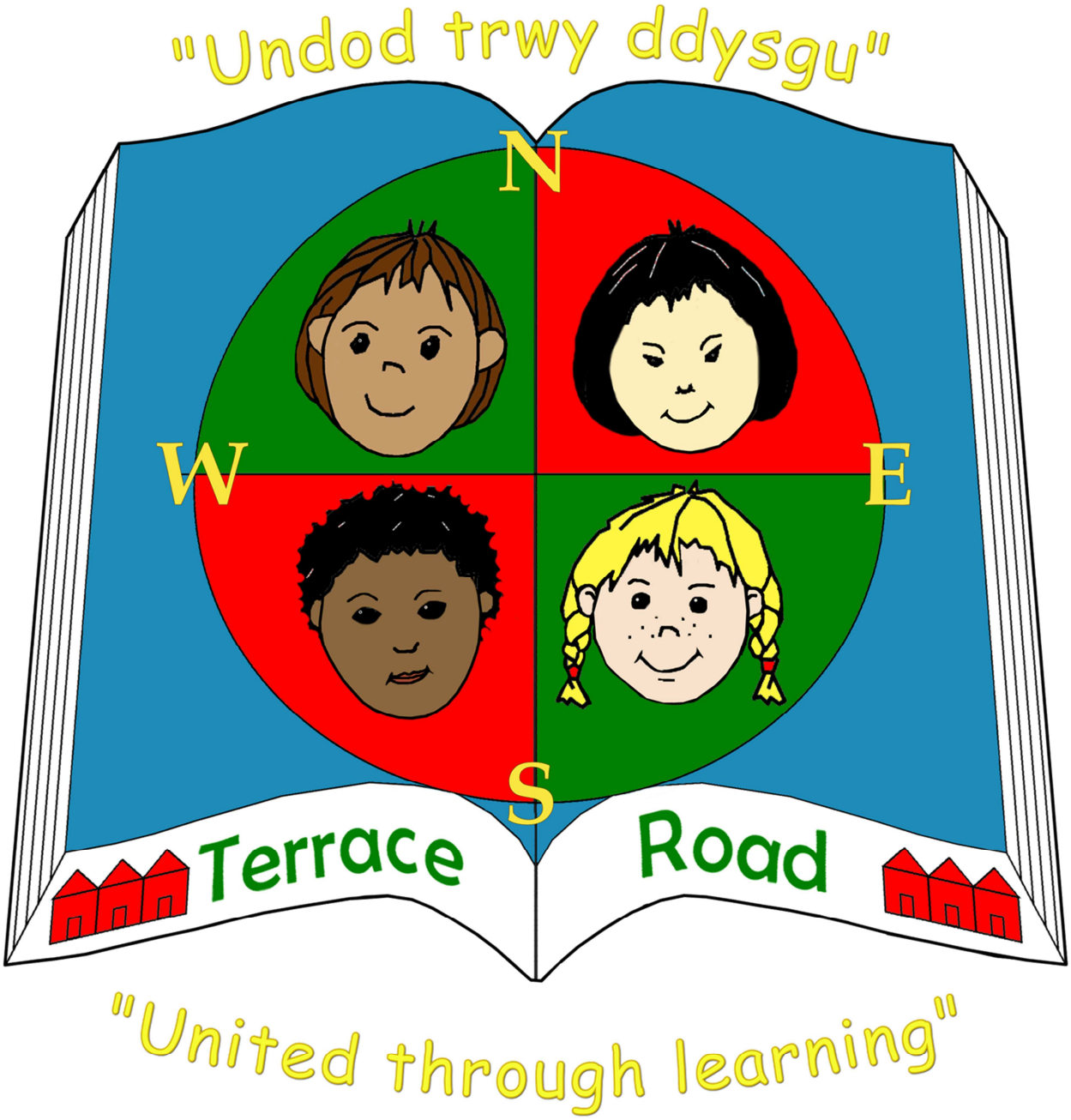
Terrace Road Primary School



Science Policy

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Introduction
This document is a statement of the aims, principles and strategies for the teaching and learning of science at Terrace Road Primary School.
It was written during the Spring Term of 2009 by the subject leader for science.

The Nature of Science
Science helps children to be more aware of the world they are living in. It aims to stimulate a child's curiosity in finding out why things happen in the way they do. It teaches methods of enquiry and investigation to stimulate creative thought. Children learn to ask scientific questions and begin to appreciate the way science will affect their future on a personal, national, and global level.

Aims
At Terrace Road Primary School we aim that all children will be given opportunity to:

- ask and answer scientific questions;
- plan and carry out scientific investigations, using equipment, including computers, correctly;
- know and understand the life processes of living things;
- know and understand the physical processes of materials, electricity, light, sound and natural forces;
- know about the nature of the sun, moon and earth;
- evaluate evidence and present their conclusions clearly and accurately.

Key Skills across the Curriculum
Foundation Phase
Developing Thinking
These processes enable children to think creatively and critically, to plan their work, carry out tasks, analyse and evaluate their findings and to reflect on their learning, making links within and outside the setting/school. The processes of developing thinking, namely plan, develop and reflect, should not be seen as a set style of learning and teaching. Each process does not have a specific place in a task. The three processes should be interchangeable.

Developing Communication
Communication is taken to mean all forms of communication, not only that which depends on developed, unimpaired speech and hearing. Wider communication skills includes non-verbal communication of all kinds – including gesture, mime, signing and the expression of ideas and emotions through other mediums such as music and art.
Developing ICT
Children's progression in ICT capability should be observed with an understanding of child development and the stages children move through. Children should be given opportunities to develop their skills using a wide range of equipment and software.
Developing Number
Mathematical information includes using numbers, measuring and gathering information. Calculating refers to using the number system and a variety of methods. Interpreting and presenting results includes talking and explaining work, comparing data and recording and interpreting data and presenting findings. Children's progression should be observed with an understanding of child development and the stages children move through.

Key Stage 2

Developing Thinking

In science, learners follow the process of planning, developing and reflecting in all areas of Enquiry, through which the Range is taught. Focused paired/group work allows such processes to be articulated within lessons so that learning and thinking strategies can be developed and applied to new situations leading to high quality outcomes.

Developing Communication

In science, learners communicate ideas, information and data in a variety of ways depending on the nature of the task, audience, purpose and the learners' own preferences. Communication can take a wide variety of forms, including the use of IT at times, and with increasing maturity should show progression in the use of scientific terminology, symbols and conventions and a more logical, systematic approach.

Developing ICT

In science, learners use ICT for a number of purposes. They search for, access, process and analyse relevant scientific evidence, information, ideas and data. They use ICT to present their evidence, information, ideas and data in the most appropriate form.

Developing Number

In science, learners work quantitatively to estimate and measure using non-standard and then standard measures, recording the latter with appropriate S.I. units. They use tables, charts and graphs to record and present information. With increasing maturity they draw lines of best fit on line graphs, use some quantitative definitions and perform scientific calculations.

Developing Curriculum Cymreig

Science contributes to the curriculum cymreig by the use of contexts that are relevant to learners' lives in Wales. The rich and varied environment around learners gives the basis for fieldwork. Learners have the opportunity to study recycling, sustainability and the impact of humans within their locality and further afield.

Developing PSE

Science contributes to learners' personal and social education by helping them to make sense of issues within their lives and others' lives. It gives background evidence to health and well-being, sex and relationships, recycling and the sustainability of both materials and energy. With increasing maturity learners compare their lives with that in developing countries and review the impact of humans on the Earth.

Teaching and learning style

We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's knowledge, skills, and understanding. Sometimes we do this through whole-class teaching, while at other times we engage the children in an enquiry-based research activity. We encourage the children to ask, as well as answer, scientific questions. They have the opportunity to use a variety of data, such as statistics, graphs, pictures, and photographs. They use ICT in science lessons where it enhances their learning. They engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in 'real' scientific activities, for example, researching a local environmental problem or carrying out a practical experiment and analysing the results.

We recognise that there are children of widely different scientific abilities in all classes and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways by:

- setting common tasks which are open-ended and can have a variety of responses;
- setting tasks of increasing difficulty (we do not expect all children to complete all tasks);
- grouping children by ability in the room and setting different tasks for each ability group;

- providing resources of different complexity, matched to the ability of the child;
- using teaching assistants to support the work of individual children or groups of children.

Science curriculum planning
The school uses the national curriculum scheme of work and the DfEE QCA scheme for science as the basis of its curriculum planning, but many other resources are used to enrich the teaching. These national schemes have been adapted to the local circumstances of the school in that we make use of the local environment in our fieldwork and we choose a locality where the physical environment differs from that which predominates in our immediate surroundings.

Science at Terrace Road is usually taught through a thematic approach and as such, there is no set model for the amount of time given over to the teaching of science on a weekly basis. The time spent on science may vary from term to term and in each topic that is taught. All teaching staff choose at their own discretion how they allocate the amount of time needed to cover the strands of the National Curriculum. Science teaching may also take place out of topics, as stand alone lessons or as blocked periods. The responsibility of ensuring adequate coverage of the National Curriculum for Science lies first with the subject co-ordinator but ultimately the individual teacher.
For more information regarding how the teaching of Science is organised, please refer to the Year Group Topic Webs.

We carry out our curriculum planning in science in three phases (long-term, medium-term and short-term). The long term plan maps the scientific topics studied in each term during the key stage. The science co-ordinator works this out in conjunction with teaching colleagues in each year group.

Our medium-term plans, which we have based on the QCA scheme and the National Curriculum in science, give details of each unit of work for each term. The science co-ordinator keeps and reviews these plans. We do our medium-term planning on a two year cycle in Key Stage 1 and Key Stage 2 and yearly cycle in the Foundation Phase. In this way we ensure complete coverage of the National Curriculum without repeating topics, but allowing each child to build on the knowledge previously gained, at different levels.

The class teacher is responsible for the lesson plans for each lesson (short-term plans). These plans list the specific learning objectives of each lesson. The class teacher keeps these individual plans.

We have planned the topics in science so that they build upon prior learning. We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit and we also build progression into the science scheme of work, so that the children are increasingly challenged as they move up through the school.

Foundation Phase
We teach science in reception class and Key Stage 1 as an integral part of the topic work covered during the year. As the reception class and Key Stage 1 is part of the Foundation Phase of the National Curriculum, we relate the scientific aspects of the children's work to the objectives set out in the Foundation Phase Framework document, which underpins the curriculum planning for children aged three to seven.

Children with special needs or who are gifted and talented
We teach science to all children, whatever their ability, as part of the school curriculum policy to provide a broad and balanced education for all children. We provide learning opportunities that are matched to the needs of the children with learning difficulties and also those who are gifted and talented and we take into account the targets set in the children's Individual Education Plans (IEPs).

Monitoring, Assessment and Evaluation
We assess children's work in science by making informal assessments through observation during lessons. On completion of a piece of work, the teacher marks the work and comments as necessary.
Teachers make an assessment of the children's work in science at the end of each topic using both formal, in Key Stage 2, and informal methods.
Towards the end of each key stage children will be given an overall level based on the 'best fit' relating to the National Curriculum levels. These levels will be reported to parents in a written report.

The science subject leader keeps samples of children's work in a portfolio, which shows what the expected level of achievement is in science in each year of the school.

Resources
A variety of scientific resources are available in school. In Key Stage 2 a few of these resources are classroom based however the majority are stored in the labelled Science Resource cupboard. In the Foundation Phase and Key Stage 1 the majority of resources are classroom based. These are maintained by the science co-ordinator who keeps a record of resources available and liaises with the Senior Management Team to plan, resource and develop other science scheme needs.

Health & Safety
All staff are aware of the need to make a risk assessment prior to a practical science lesson as part of their planning. The safety of the children must be paramount and class teachers should see advice if in any doubt about the safety of an activity. CLEAPSS (School Science Service Help line – 01895 251496)

Monitoring and review
The science co-ordinator is responsible for monitoring the standard of children's work and the quality of teaching in science. The science co-ordinator is also responsible for supporting colleagues in the teaching of science, for being informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school.

Role of the Governors
Governors are linked to a curriculum area in which they have a particular interest. During their visits to school they may focus on that part of the curriculum.

Review
The policy for science in this school was developed for the benefit of both the children and staff. It is intended to be a working document and will be regularly evaluated and updated.