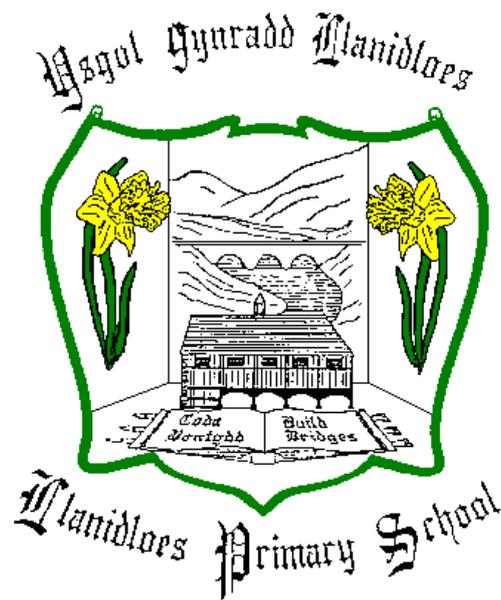


Ysgol Gynradd **Llanidloes** Primary School

Policy for Science



This policy was adopted on _____

Signed: _____ (Chair) _____ (Head)

Reviewed: _____

Purpose

This policy is a statement of the aims and objectives, and teaching strategies for science at Llanidloes CP School. It should be read in conjunction with the following school policies:

- Teaching and Learning Policy
- Curriculum Statement
- Assessment, Recording and Reporting Policy
- Food and Fitness Policy
- Policy for ESDGC
- Policy for PSE
- Sex education policy

This policy will improve teaching and learning by ensuring that all staff understand the core aims and key objectives for teaching science.

Core Aims

Science teaches an understanding of natural phenomena. 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.

Specific Aims

- ✓ To relate experiences to everyday life and so develop understanding of the physical and natural world
- ✓ To develop enquiring minds, fostering enjoyment of science and promote an interest for life
- ✓ To develop an investigative, systematic and reflective approach to learning
- ✓ To develop knowledge and understanding of key scientific concepts
- ✓ To develop social and communication skills, thinking, ICT and number in this curriculum context.

Time Allocation

The use and development of scientific skills occurs throughout the day, but the teaching of specific Science lessons should be clearly timetabled for:

Foundation Phase: 1hr to 1.30hrs (comes under Knowledge and Understanding of the World)

Key Stage 2: 2.30hrs-3hrs per week

The thematic approach to the curriculum creates a degree of 'overlap', whereby two subject areas are being covered within the same lesson. For example, using scientific research on the planets to write non-chronological reports, or a database on the planets in I.C.T.

Broad Content

Knowledge and Understanding of the World in the Foundation Phase (embracing science)

Children should experience the familiar world through enquiry, investigating the indoor and outdoor environment in a safe and systematic way. They should be given experiences that help them to increase their curiosity about the world around them and to begin to understand past events, people and places, living things, and the work people do. Using all their senses, they should be encouraged to enjoy learning by exploration, enquiry, experimentation, asking questions and trying to find answers.

They should learn to demonstrate care, responsibility, concern and respect for all living things and the environment.

Science at Key Stage 2

At Key Stage 2, learners should be given opportunities to build on the skills, knowledge and understanding acquired during the Foundation Phase. They should develop their skills through the range of Interdependence of organisms, The sustainable Earth and How things work. Learners should be taught to relate their scientific skills, knowledge and understanding to applications of science in everyday life, including current issues. They should be taught to recognise that scientific ideas can be evaluated by means of information gathered from observations and measurements. Teaching should encourage learners to manage their own learning and develop learning and thinking strategies appropriate to their maturity. They should be taught to value others' views and show responsibility as local citizens.

Teaching Strategies

We believe children learn best when:

- ❖ Prior learning is established and links to their own lives are established;
- ❖ They are actively involved in their learning;
- ❖ They are given time to explore, question and experiment;
- ❖ They feel their ideas and opinions are valued;
- ❖ They are confident about taking risks in order to extend their understanding.

In order to fulfil the National Curriculum and encompass our belief in the above statements, an enquiry based approach will be followed, using the range elements within the curriculum as the vehicle for developing the skills. Enquiry will be developed in meaningful contexts.

Pupils will:

- Build on the skills and attitudes acquired during the Foundation Phase
- Ask questions, predict and hypothesise
- Plan investigations
- Observe, measure and manipulate variables
- Record results
- Interpret results and evaluate scientific evidence
- Pose further questions
- Reflect on their learning
- Apply and develop their skills of communication, ICT and number

It is, however, sometimes appropriate for the teacher to use demonstration, plan for research or carry out teacher-led investigations when the objectives, resources and the needs of groups and/or individuals dictate.

A typical structure for a unit of work would be:

1. Activate prior learning - make links, question etc. Use mind maps, picture sequencing, concept mapping, discussion, records made during previous learning etc.
2. Teaching – new vocabulary/concepts, including teacher led investigation or demonstration where appropriate
3. Learning – time to embed and extend understanding, applying enquiry skills and exploring own questions and ideas
4. Reflect – on both the learning and the process of the learning

The Learning Programme/scheme of work will ensure that the range within the curriculum is fully planned for. The range will act as the vehicle through which the skills are developed.

The Learning Environment

The pupils' learning environment will extend beyond the immediate classroom, and use will be made of the outdoors wherever appropriate. Off-site visits will also be used to enhance pupils' understanding and experiences where available.

National Literacy and Numeracy Framework

The National Literacy and Numeracy framework (LNF) was introduced in 2013 to help Welsh pupils develop excellent literacy and numeracy skills during their time at school.

Curriculum planning in all subject areas will take account of the LNF to ensure the development of literacy and numeracy skills across the curriculum.

In order to embed the LNF in all teaching and learning, literacy and numeracy skills have become the primary focus for planning in all subjects including ICT.

Within **literacy**, the strands are:

- Oracy across the curriculum
- Reading across the curriculum
- Writing across the curriculum

Within **numeracy**, the strands are:

- Developing numerical reasoning
- Using number skills
- Using measuring skills
- Using data skills

Skills Framework

Developing Thinking

Learners develop their thinking across the curriculum through the processes of **planning, developing** and **reflecting**.

In **science**, learners follow the processes 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.

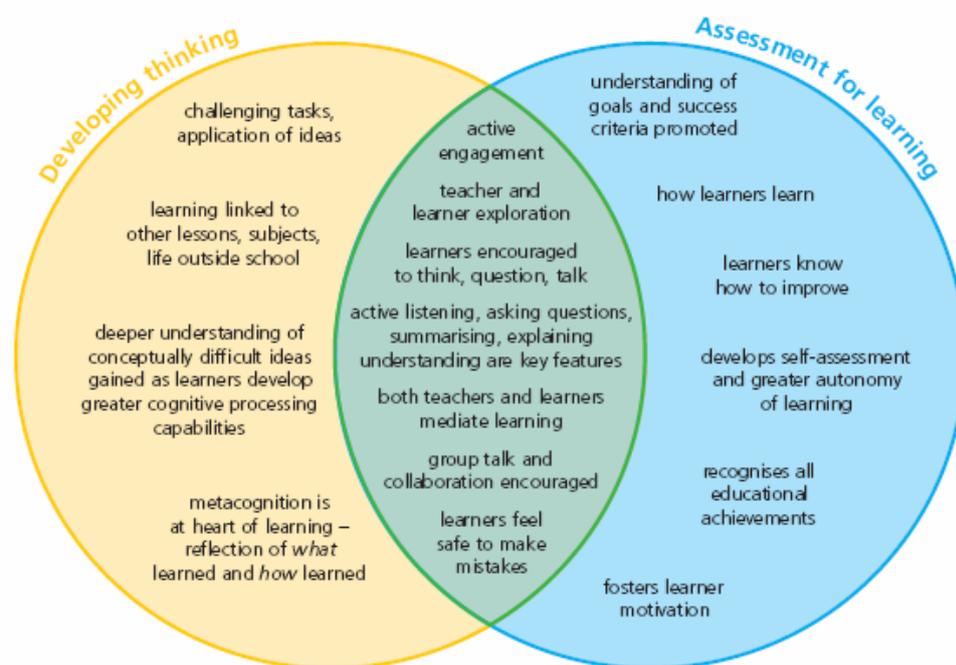
Developing ICT

Learners develop their ICT skills across the curriculum by **finding, developing, creating and presenting information and ideas** and by using a wide range of equipment and software.

In **science**, learners use ICT for a number of purposes. They search for, access, collect, 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.

Thinking Skills / Assessment for Learning

We endeavour to develop the following by incorporating a range of strategies and techniques:



The Foundation Phase

Scientific skills and concepts are now incorporated into the Knowledge and Understanding of the World area within the Foundation Phase curriculum. Ideas and understanding are developed through themes that place learning in a context, using a play based and active learning approach.

Additional Learning Needs

Staff will plan work that will enable all pupils to access the curriculum and develop the skills that are appropriate for them at that stage of their learning. Use will be made of practical activities, concrete resources and LSAs in class wherever possible.

SEN – Staff will ensure that specific difficulties will be supported and/or minimised to enable pupils to develop and express their scientific understanding.

MAT – the enquiry based approach provides many opportunities for MAT pupils to extend their learning.

Equal Opportunities

We endeavour to provide equal opportunities to all our pupils, regardless of gender, race or ability.

See Equal Opportunities policy for further details.

Health and Safety

The school is aware of the Health and Safety issues involved in children's learning in Science and follows the recommendations made by Powys County Council. The school will carry out risk assessments of activities that fall outside of ordinary classroom expectations.

Opportunities are used to increase the pupils' awareness of hazards and risks, and to develop understanding of how they can keep themselves and others safe.

The school will dispose of redundant equipment responsibly, safely and appropriately. Every effort is made to recycle materials.

See Health and Safety policy for further details

Curriculum Cymreig

Science contributes to the Curriculum Cymreig by offering learners the opportunity to develop an understanding and appreciation of scientific ideas and exploration in the context of their local and national environment, and from current issues related to Wales.

Bi-lingualism

The Welsh language will be used to support the development of Science where it is deemed appropriate.

The Role of the Science Co-coordinator

At Llanidloes Primary School we have a designated member of staff who acts as a co-ordinator for Science. At present the co-ordinator is **Mr David Edwards**. The co-ordinator is responsible for:

- Identifying and leading development of the teaching of Science to all pupils
- Reviewing the whole school policy as per the schools policy review programme.
- Developing a Science scheme of work/learning programme for Key Stage 2, and working in liaison with Foundation Phase staff to ensure coverage of range and skills within the topic based approach.
- Monitoring, evaluating and reviewing the effectiveness of the school's Science programme as per the monitoring policy arrangements
- Monitoring of standards of attainment in scientific skills and understanding throughout the school
- Organisation and audit of resources
- Keeping abreast of developments in Science and leading new initiatives at a school level.

Assessment

Teachers will assess children's development in Science through a variety of ways:

Short term assessments inform weekly planning, and allow staff to adjust planning to tackle issues that are pertinent to pupils at the time. These short term assessments are also communicated to the pupils, through discussion and marking of work, to enable them to understand the next steps of their development and how to achieve it.

Medium term assessments are recorded to track pupils' progress in specific skills, and these judgments also inform future planning, as well as helping towards summative assessments.

Use is made of Optional Assessment Materials as part of the curriculum where relevant, to aid teachers with judgements about pupils' skills. These assessments will also feed into our tracking system.

Summative assessments are the end of year assessments which are passed to future teachers.

Pupils in year 2 and year 6 will be assessed against the Foundation Phase Outcomes and Level Descriptors respectively, unless disapplied from the curriculum.

Reporting to Parents

This is carried out through formal parent evenings and an annual written report which includes a way forward for the following year.

Parents of pupils in year 2 and year 6 will also be informed of the outcomes/levels that the children have reached, and will be provided with comparative data alongside this.

Monitoring and Evaluation

The purpose of monitoring and evaluation activities is to raise the overall quality of teaching and levels of pupil attainment. The Science co-coordinator and Head teacher will monitor the quality of teaching and learning as part of the school's self-evaluation policy and monitoring cycle together with the teaching staff. The quality of Science in the school will also be inspected as part of any ESTYN inspection of the school as a whole.

Monitoring will focus on the development of the subject specific science skills and the use of cross curricular skills.

Resources

Most Scientific resources are based in the Resource room at the beginning of the KS2 corridor. Please see separate sheet for specific resources.

APPENDIX of Amendments