

Meadowburn Primary School Bun Sgoil Innis an Uillt



SCIENCES POLICY

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Scotland has a long tradition of scientific discovery, and of the application of science in the protection and enhancement of the natural and built environment. In a modern and ambitious society like ours, sciences for all are vital.

CfE Briefing 15, Sciences for All

Rationale

Science is an important part of our heritage and we use its applications every day in our lives at work, at leisure and in the home. Science and the application of science are central to our economic future and to our health and wellbeing as individuals and as a society. Through learning in the sciences, children and young people develop their interest in, and understanding of, the living, material and physical world. They engage in a wide range of collaborative investigative tasks, which allows them to develop important skills to become creative, inventive and enterprising adults in a world where the skills and knowledge of the sciences are needed across all sectors of the economy.

Learning and Teaching Approaches

Although the content of the curriculum is important, our aspirations can only be achieved through high quality learning and teaching.

CfE, Sciences Principles and Practice, 2009

The sciences experiences and outcomes are designed to stimulate the interest and motivation of children and young people and support staff in planning challenging, engaging and enjoyable learning and teaching activities. Learning and teaching approaches will allow flexibility and choice for both teachers and learners, in accordance with Meadowburn Primary's Effective Learning and Teaching Policy.

Effective learning through sciences which promotes confidence, independent thinking and positive attitudes and actions requires:

Leadership which:

- active learning and planned, purposeful play
- development of problem-solving skills and analytical thinking skills
- development of scientific practical investigation and inquiry
- use of relevant contexts, familiar to young people's experiences
- appropriate and effective use of technology, real materials and living things
- building on the principles of Assessment is for learning
- collaborative learning and independent thinking
- emphasis on children explaining their understanding of concepts, informed discussion and communication.

Inquiry and Investigative Skills

Through experimenting and carrying out practical scientific investigations and other research to solve problems and challenges, children and young people:

- ask questions or hypothesise
- plan and design procedures and experiments
- select appropriate samples, equipment and other resources
- carry out experiments
- use practical analytical techniques
- observe, collect, measure and record evidence, taking account of safety and controlling risk and hazards
- present, analyse and interpret data to draw conclusions
- review and evaluate results to identify limitations and improvements
- present and report on findings.

The main approaches to Science Inquiry are:

- observing and exploring - careful observation of how something behaves, looking for changes over time and exploring 'what happens if...?' and 'how could I...?' questions
- classifying - through identifying key characteristics
- fair testing - through identifying all possible variables and then changing only one while controlling all others
- finding an association - linking two variables to determine relationships.

Assessment

Assessment will focus on children's knowledge and understanding of key scientific concepts in the living, material and physical world, inquiry and investigative skills, scientific analytical and thinking skills, scientific literacy and general attributes. Teachers can gather evidence of progress as part of day-to-day learning and specific assessment tasks will also be important in assessing progress at key points of learning.

Specific Learning Outcomes

Learning in and through the Sciences creates opportunities for discovery through which people make sense of and become passionate about, the environment around them. The sciences develop enquiring minds and nurture learners' natural curiosity, imagination and creativity.

CfE Briefing 15. Sciences for All

The sciences experiences and outcomes have been structured under five clear organisers:

- Planet Earth
- Forces, Electricity and Waves
- Biological Systems
- Materials
- Topical Science.

Children and young people participating in the experiences and outcomes in the sciences will:

- develop curiosity and understanding of the environment and my place in the living, material and physical world
- demonstrate a secure knowledge and understanding of the big ideas and concepts of the sciences

- develop the skills of scientific inquiry and investigation using practical techniques
- develop skills in the accurate use of scientific language, formulae and equations
- apply safety measures and take necessary actions to control risk and hazards
- recognise the impact the sciences make on my life, the lives of others, the environment and on society
- recognise the role of creativity and inventiveness in the development of the sciences
- develop an understanding of the Earth's resources and the need for responsible use of them
- express opinions and make decisions on social, moral, ethical, economic and environmental issues based upon sound understanding
- develop as a scientifically-literate citizen with a lifelong interest in the sciences
- establish the foundation for more advanced learning and future careers in the sciences and the technologies.

Sciences in Meadowburn Primary

Learning in sciences in Meadowburn is delivered through a balance of discrete learning and interdisciplinary learning, through mainly practical and experiential approaches and in topical and relevant contexts. A progressive, skills based Programme of Learning from Early to Second Level has been created to ensure that learners experience their entitlement to a broad general education whilst also allowing flexibility and teacher autonomy in the planning process. In Meadowburn Primary we have also created a 3 year programme of 'Worlds' that provides a framework for Interdisciplinary Learning that includes 'Our Scientific World' and 'Our Natural World.' These 'worlds' provide opportunities to develop coherence, breadth and depth in learning and to reinforce concepts and skills in different contexts. Skills development in the sciences is also further enhanced through termly Science Activity Clubs for P4-P7 pupils and through a biennial whole school Science Day.

Additional Information:

- Core Programme of Learning for Science
- Developing Capacities for Science
- Framework for Interdisciplinary Learning