Meadowburn Primary School
Bun Sgoil Innis an Uillt

MATHEMATICS POLICY

Revised January 2015

To face the challenges of the 21st century, each young person needs to have confidence in using mathematical skills, and Scotland needs both specialist mathematicians and a highly numerate population. Building the Curriculum 1

Meadowburn Primary School endorses the *Curriculum for Excellence (CfE) Mathematics Principles and Practice, 2009.* Learning and Teaching in mathematics embraces the central 7 principles of CfE: Challenge and Enjoyment, Breadth, Progression, Depth, Personalisation and Choice, Coherence and Relevance. Meadowburn Primary School regards CfE guidelines as essential in providing a structure to the curriculum within a framework which embraces current national priorities and East Dunbartonshire's development objectives.

Rationale

Mathematics is identified as a key area on the curriculum as it plays an important role in people's lives. Mathematics equips us with many of the skills required for learning, life and work. Understanding the part that mathematics plays in almost all aspects of life is crucial. It is used in everyday activities such as time keeping, playing games and budgeting. Mathematics has been one of the decisive factors in shaping the modern day world and continues to grow, including in areas such as:

- Science and Technologies
- Research and Development
- Engineering, Computing Science, Medicine and Finance

Aims

The aims of the mathematics curriculum are described in the guidelines as helping pupils to:

- Make sense of the world around us and manage our lives
- Model real-life situations and make connections and informed predictions
- Access opportunities to pursue further studies and interests
- Have the skills to interpret and analyse information, simplify and solve problems, assess risk and make informed decisions
- Develop logical reasoning, analysis, problem-solving skills, creativity and the ability to think in abstract ways
- Use and apply a universal language of numbers and symbols in order to communicate ideas in a concise, unambiguous and rigorous way.

The mathematics framework as a whole includes a strong emphasis on the important part mathematics has played, and will continue to play, in the advancement of society, and the relevance it has for daily life. CfE, Mathematics Principles and Practice, 2009

Learning and Teaching Approaches

A range of teaching strategies, which take account of pupils' interests, previous experiences and attainment, will enhance pupils' learning. Learning and teaching approaches will be flexible and responsive to the needs of children, taking account of different learning styles and contexts in accordance with Meadowburn Primary's Learning and Teaching Policy.

From early stages onwards, children and young people should experience success in mathematics and develop the confidence to take risks, ask questions and explore alternative solutions without fear of being wrong. They will enjoy exploring and applying mathematical concepts to understand and solve problems, explaining their thinking and presenting their solutions to others in a variety of ways. At all stages, an emphasis on collaborative learning will encourage children to reason logically and creatively through discussion of mathematical ideas and concepts.

CfE, Mathematics Principles and Practice, 2009

In order to challenge and stimulate children and promote their enjoyment of mathematics, a skilful mix of approaches will be used by teachers that include:

- Planned active learning
- Modelling and scaffolding
- Collaborative and independent learning
- Discussion, communication and explanation of thinking
- Develop mental agility, including use of KISS (Keeping Important Skills Sharp) sessions
- Use relevant contexts and experiences
- Making links across the curriculum to show how mathematical concepts can be applied in a wide range of contexts
- Using technology in appropriate and effective ways
- Build on principles of Assessment is for Learning (Aifl) including clearly stating Learning Intentions and Success Criteria
- Develop problem solving and critical thinking skills including use of Bloom's Taxonomy approaches.

Mathematics is at its most powerful when the knowledge and understanding that have been developed are used to solve problems. Problem solving will be at the heart of all our learning and teaching. We should regularly encourage children to explore different options: 'what would happen if...?' is the fundamental question for teachers and learners to ask as mathematical thinking develops.

Specific Learning Outcomes

Programmes in mathematics are based on CfE 3 main organisers:

- Number, money and measure, Shape, position and movement and Information Handling

Number, Money and Measure

- Estimation and rounding
- Number and number processes
- Multiples, factors and primes
- Powers and roots
- Fractions, decimal fractions and percentages
- Money, measure and time
- Mathematics – its impact on the world, past, present and future
- Patterns and relationships
- Expressions and equations

Shape, position and movement

- Properties of 2D shapes and 3D objects
- Angle, symmetry and transformation

Information Handling

- Data and analysis
- Ideas of chance and uncertainty

Numeracy across Learning

It is the responsibility of teachers to promote and develop numeracy skills, in order to develop skills and prepare children in their everyday life and to contribute effectively to society.

Numeracy is a skill for life, learning and work. Having well-developed numeracy skills allows young people to be more confident in social settings and enhances enjoyment in a large number of leisure activities.

Through Interdisciplinary Learning (IDL) planning in Meadowburn teachers identify aspects of numeracy that can be explored through the topic. This allows children to explore numeracy through more meaningful contexts that can be related to real life situations and allow further exploration and understanding into these concepts. Examples include:

- Analysing and Interpreting data
- Displaying data information
- Budgeting money
- Exploring angles, shape & symmetry

Assessment, Recording and Reporting

Progress and attainment in learning will be monitored by assessment that is an integral part of learning and teaching but which will not dominate the process. The process of assessing pupil's progress will be set in a context of effective learning and teaching that takes account of the five key teacher responsibilities: planning, teaching, recording, reporting and evaluating.

Formative assessment strategies include:

- Self Assessment
- Peer Assessment
- Teacher feedback – verbal and written

Class work will be regularly assessed by teachers and analysed to inform next steps in learning.

Formative assessment strategies are used to:

- Give pupils clear and regular, high quality feedback
- Share learning intentions and success criteria
- Assist learners and teachers in identifying next steps in learning to ensure progression
- Evaluate effective learning and teaching by teachers

Summative assessments include:

- P1 Baseline Assessment
- P4 & P7 Standardised Assessment
- Assessment week – carried out 3 times per year across P1-P7.

Assessments are based on previous learning outcomes and skills development. Children's Mathematical Groupings are based on the analysis of assessment information, class work evidence and teacher observations. Assessment Results are monitored and passed onto the next teacher.

The method used to assess children's progress will be proportionate and appropriate in order to inform the planning of the next steps in learning and teaching. Reporting to parents will be specific and in clear language to promote effective communication between school and home.

ICT

ICT will play a role in the delivery of the curriculum, by motivating learners, supporting and enhancing different kinds of learning and as a tool when using or applying mathematics. Some examples of effective use of ICT in mathematics include:

- To introduce concepts in an interactive and engaging way
- To reinforce concepts through the use of mathematical games and challenges
- To enhance follow-up work of mathematical concepts, for example data and analysis

Roles and Responsibilities

The Senior Management Team (SMT) will manage the implementation of Meadowburn's Mathematics Policy as laid out in the school's improvement plans and in line with the authority improvement plan and consult with parents, pupils and other stakeholders in relation to developments in this area of the curriculum. Teachers will work to ensure that policy implementation and curricular development enhances learning and teaching and contributes to raising attainment and achievement in mathematics.
Parents/Carers will be encouraged to play an active role in supporting pupils' learning in mathematics thereby fostering the home/school partnership. Parents' Information leaflets will be issued at parent information sessions and will be readily available from the school website.

Pupils will be encouraged to be actively involved in their learning in mathematics and to develop positive attitudes to mathematics.

Resources

The SMT will ensure that Meadowburn Primary has appropriate and up to date resources to support learning and teaching mathematics; these will include books, pupil materials, ICT resources, interactive white board resources, practical materials, games, video clips etc. Within the school the SMT will ensure that the responsibility for the organisation and planning of resources is clearly understood by all staff, that inventories are drawn up and resources are stored in ways that facilitate accessibility by pupils and/or staff. Pupils' work will be displayed appropriately to promote learning and encourage positive attitudes to mathematics.
Materials include:

- Heinemann Active Maths Resource
- Scottish Heinemann Maths
- TeeJay Assessment Resource
- Maths on Track Mental Maths Agility Programme
- EDC ICT Maths Programme

Monitoring and Evaluation

Self-evaluation of the quality of learning and teaching is a fundamental responsibility of all teaching staff and a particular duty of SMT in Meadowburn Primary.