

Ballyvester P.S.

Mathematics and Numeracy Policy



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Introduction

In Ballyvester Primary School the term "Mathematics" is synonymous with Numeracy throughout our school.

"Numeracy is the ability to apply mathematical skills and knowledge in familiar and unfamiliar contexts and in a range of settings throughout life, including the workplace."

This is the Mathematics and Numeracy policy agreed by the Principal, staff and Board of Governors of Ballyvester Primary School. In Ballyvester Primary School we value every pupil and the contribution they make. We believe that every child should experience success in Mathematics and Numeracy and should be encouraged to develop their skills in accordance with their level of ability. We aim to equip our children with the necessary life skills to allow them to participate fully in the society in which they live.

We have adopted the definition of Numeracy from "*Count, Read: Succeed*" (para. 1.10):

'The ability to apply appropriate mathematical skills and knowledge in familiar and unfamiliar contexts and in a range of settings throughout life including the workplace'.

It involves the development of:

- a. An understanding of key mathematical concepts and their inter-connectedness
- b. Appropriate reasoning and problem-solving
- c. The proficient and appropriate use of methods and procedures (formal and informal, mental and written)
- d. Active participation in the exploration of mathematical ideas and models

Aims

The aims of this policy are to

- Address the whole school audience
- Ensure that staff are aware of the teaching approaches associated with Numeracy
- Identify the roles, which each staff has in the promotion of Numeracy
- Set out principles which aim to enhance the quality of teaching and learning

It is our view that Numeracy is much more than "arithmetic" i.e. knowing about number operations. At Ballyvester Primary School we intend that, by the end of Key Stage 2 and at a level appropriate to their ability, children will be able to:

- Choose the appropriate materials, equipment and mathematics to use in a particular situation;
- Use mathematical knowledge and concepts accurately;
- Work systematically and check their work;
- Use mathematics to solve problems and make decisions;
- Develop methods and strategies, including mental mathematics;
- Explore ideas, make and test predictions and think creatively;
- Identify and collect information;
- Read, interpret, organise and present information in mathematical formats;
- Use mathematical understanding and language to ask and answer questions, talk about and discuss ideas and explain ways of working;
- Develop financial capability;
- Use ICT to solve problems and/or present their work.

(From: Requirement for Using Mathematic, NI Primary Curriculum. P.6 (CCEA 2007)).

Teaching Mathematics

The school's approach to teaching mathematics, as in line with the Northern Ireland Primary Curriculum is:

- To ensure that there is adequate time for developing numeracy skills, class teachers will provide a daily lesson for mathematics which will last approximately 45 minutes in the Foundation Stage, 50 minutes in Key Stage 1 and 60 minutes in Key Stage 2. Pupils will also be given opportunities to transfer their mathematical understanding to other contexts across the curriculum.

In the Foundation Stage activities should involve children playing, exploring and investigating, doing and observing, talking and listening and asking and answering questions.

- Through engaging in a wide variety of activities, children should understand mathematical language and then begin to use the language to talk about their work.
- Mathematical activities should be presented through contexts that have a real meaning for children and provide opportunities for them to investigate their ideas.

In Key Stage 1 and 2 mathematical ideas should be introduced to children in meaningful contexts:

- Activities should be balanced between tasks which develop knowledge, skills and understanding, and those which develop the ability to apply mathematical learning and solve problems.
- Children should use their knowledge of mathematical language to talk about their work and explain their findings.
- Children should be given regular opportunities to develop their skills in mental mathematics, to estimate and approximate and to investigate and make predictions and decisions within mathematics, across the curriculum and in real-life situations.
- We, in Ballyvester P.S., see it as our role to teach Mathematics and Numeracy at a level which is appropriate to each individual. Very often, this influences how we organise our classes: whole class teaching, group work and individual/paired work. This varied approach recognises that

different children and young people learn in different ways and there is no single approach to teaching that will suit all pupils.

AfL

Assessment for Learning is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go next in their learning and how best to get them there.

AfL involves the following key actions:

- Sharing learning intentions
- Sharing success criteria
- Giving feedback to pupils
- Effective questioning; and
- Encouraging pupils to assess and evaluate their own and others' work.

Other strategies

- Investigations
- Problem Solving
- Recording
- Discussions
- Games
- Use of apparatus
- Learning through play/Active Learning
- ICT/Interactive White boards
- Mental Maths
- TSPC

Thinking Skills and Personal Capabilities

Teachers will ensure that the activities which the pupils experience in Mathematics and Numeracy will enable them to develop the statutory Thinking Skills and Personal Capabilities set out in the Northern Ireland Curriculum:

- Thinking, Problem-Solving and Decision Making;
- Self-Management;
- Working With Others;
- Managing Information;
- Being Creative.

These opportunities are to be identified in each class' 6 weekly plans.

Role of ICT

ICT is seen as an integral part of Mathematics and Numeracy and is used to help enhance our pupils' understanding. The role of ICT is as follows:

- To consolidate pupils' learning;
- To further develop pupils' numeracy skills;
- To provide pupils with a variety of stimuli, therefore developing their use of mathematical processes;
- To provide pupils with a variety of challenging learning situations;
- To promote pupils' enjoyment of Mathematics and Numeracy;
- To provide pupils with opportunities to take part in co-operative activities.
- To facilitate a differentiated pace and level of learning that takes account of individual pupil abilities, including those who are more able.
- To help provide appropriate support and scope for greater independence for children at of all abilities.
- To facilitate access to sources of information from a wide variety of resources.
- To foster the development of information skills that teach pupils to be discriminating in their use of information and to be able to shape and present it in ways appropriate to the context.
- To increase motivation to learn.

- To provide a stimulating and non-threatening learning environment.
- Engage children more deeply in their learning.

The pupils develop their ICT skills in numeracy lessons by making use of:

- Interactive whiteboards;
- C2k programs;
- Learning NI resources;
- Internet sites;
- Calculators;
- Roamer;
- Bee Bots;
- iPads;
- Digital media.

The use of ICT is to be identified in each class' 6 weekly plans.

Calculators

Our Mental Maths progression sets great value and importance on children knowing appropriate number facts off by heart, and being able to use a variety of strategies to calculate in their heads. We also believe that it is vital that children are able to perform pencil and paper calculations efficiently and effectively, which is reflected in our yearly overviews for Mathematics/Numeracy. We also recognise, however, that calculators are used in everyday life and we strive to ensure that the children are able to use a calculator efficiently and effectively.

To this end, children in Ballyvester Primary School will, at a level matched to their mathematical progress:

- Check the calculator result, by estimating before calculating and /or by performing an inverse operation;
- Interpret a calculator display, e.g. in the context of money, or where decimal numbers are involved;
- Use calculators in real-life problem solving activities, where the data used will not be so amenable to written or mental calculations. In these situations the emphasis is on selecting the appropriate calculation more than the actual working out of the calculation;

- Use calculators in investigative work; e.g. trying lots of examples to find patterns, using trial and improvement methods to find an answer. Here the calculator supports rather than replaces mathematical thinking.
- Explore the use of calculators through play and number games;

MENTAL MATHS

At Ballyvester Primary School we recognise the vital importance of a child's ability to calculate mentally. We believe that an ability and inclination to calculate mentally leads to greater proficiency and understanding in all areas of Mathematics, and is a crucial skill in the application of mathematics in the world outside the classroom.

We strive to ensure:

- Children build up a bank of number facts which they know off by heart, to include addition, subtraction, multiplication and division facts;
- Children are able to use these known facts to perform an increasing range of calculations in their heads, using a variety of methods;
- Children build up a good understanding of the Number System, based on Place Value of Base 10.

In order to facilitate this, teachers:

- Ensure children are taught a minimum of 10 minutes mental maths per day;
- Implement a structured progression of mental maths, based on specific intended learning outcomes;
- Regularly assess children's achievement of these learning outcomes;
- Use a variety of teaching activities, including mathematical games and U.I.C.T., in whole class, group and individual work;

Using Mathematics Across the Curriculum

The Northern Ireland Curriculum identifies 'Using Mathematics' as one of the three Cross-Curricular Skills that children require for lifelong learning and for operating effectively in society. Although our pupils will mainly acquire and consolidate their mathematical knowledge, concepts and skills during their mathematics lessons they will also be given opportunities to transfer their understanding as appropriate to other contexts across the curriculum. These opportunities are identified in each class' 6 weekly notes.

Progression and Continuity

Mathematics and Numeracy is regarded as a core subject of the school curriculum. The school's Mathematics and Numeracy scheme of work is based on the statutory requirements for Mathematics and Numeracy outlined in the Northern Ireland Curriculum and CCEA's Lines of Development and provided as a line of progression by EA - SER. The content of the scheme facilitates a structured and sequenced set of experiences for each pupil as they progress through the Key Stages. Teacher's plan for their class using 6 weekly planners which include:

- Learning intentions in all areas of Mathematics and Numeracy, including Mental Maths;
- Resources to be used;
- Mental strategies to be taught;
- Problem - Solving and Investigation activities
- ICT resources to be used;
- Needs of all learners showing where extra support is needed.

These planners are evaluated by the teachers at the end of the 6 weeks.

Differentiation

Differentiation is necessary for children to progress at their own pace therefore activities are planned to match ability levels regardless of age and year group. Various methods of differentiation are used and these are also identified in teacher's 6 weekly plans.

Special Educational Needs

The class teacher is responsible for addressing the specific needs of less able pupils in relation to Mathematics and Numeracy and an Individual Education Plan will be drawn up, twice a year, for each child that requires one. The targets are shared with the pupil's parents who then sign to indicate they agree with them. The pupil's progress towards achieving the targets is monitored and reviewed at

Christmas and at the end of the year. Where appropriate, pupils will receive extra support from one of the school's teachers and / or external agencies.

Equal Opportunities

Every child regardless of gender will be given the opportunity to develop their full mathematical potential. Equal opportunities are provided for boys and girls and this will be monitored by analysing pupil performance throughout the school to ensure there is no disparity.

Homework

The purpose of Mathematics and Numeracy homework is to:

- Reinforce work done in school;
- Give parents an insight into the type and range of activities in which children are engaged in at school;
- Allow pupils to further investigate a topic.

Mathematics and Numeracy homework will include practical activities, written activities, investigative activities and in some cases, rote learning activities.

The quantity and frequency of Mathematics and Numeracy homework is outlined in the school's homework policy.

Mathematics Resources

The school has a wide variety of Mathematics equipment and materials. The primary textbook used is Heinemann Active Maths. However, teachers also use materials from other schemes as they see appropriate. In each class, teachers make and use their own generated worksheets to support teaching and learning in Numeracy. ICT is used where appropriate in the teaching and learning of Numeracy. Each classroom is equipped with resource materials needed for that year group and shared resources are kept in Mrs Greenald's classroom store.

Assessment

Assessment is an integral part of our teaching and learning and it is a continuous process. We strive to make our assessment purposeful; using it to inform our planning; to help in identifying any difficulties children may be experiencing in understanding Mathematics and Numeracy and in assisting us to evaluate the quality of teaching and learning.

Assessment mainly takes place during Mathematics and Numeracy lessons but other forms of formative assessment such as weekly and end of term assessments are also used. More formal assessments including standardised tests are also carried out during the academic year:

Year	Assessment
P1	
P2	
P3	PTM 7 (May)
P4	PTM 8 (May)
P5	PTM 9 (May)
P6	PTM 10 (May)
P7	PTM 11 (May)

Evaluations

As professionals, teachers are expected to evaluate their approaches to the teaching of Mathematics and Numeracy. Teachers evaluate planners. Co-ordinators review their action plans.

Criteria For Target Setting

The following elements may contribute to the setting of targets:

- Teacher's professional judgement
- Results of Standardised tests PTM; (Y3-7)
- Cat 4 digital

Every summer term teachers meet to analyse data and set class and whole school targets linked to Numeracy.

Identifying and Addressing underachievement

In Ballyvester Primary School we consider it absolutely essential that each and every pupil fulfils their full potential as a learner of mathematics. To this end, we aim to identify pupils who are under-achieving and to ensure that an appropriate remediation process is set in place, based on specific areas identified for improvement. Every pupil's current P.T.M. (Progress through Maths) standardised score is compared with their most recent C.A.T. (Quantitative) standardised scores. If a pupil's score is 10 or more point below their CAT, this is an indication that the pupil is under-achieving in mathematics. This is monitored from year to year.

Record Keeping

Class teachers each have their own form of assessment which they keep in their class. Assessment Data based on PTM is kept in a class folder. Individual pupil record sheets containing standardised tests carried out, along with their annual reports are kept in green folders.

Reporting to Parents

Ballyvester views its relationship with parents as being a valuable and interactive partnership working together for the good of the child. It is school policy to report on pupils' progress on two occasions during the school year. In the first and second terms of the school year parents are invited to meet with teachers to discuss their child's progress. Parents are also provided with a written report at the end of the school year. The Standardised Scores of pupils in Mathematics and Numeracy is included in the pupils' end of year report.

Role of the Numeracy Co-Ordinator

The Numeracy Co-Ordinator will:

- Demonstrate expertise, enthusiasm and vision.

- Promote self-evaluation in order to enhance the monitoring, evaluation and review processes.
- Monitor, evaluate and record progress on the Numeracy Action Plan.
- Ensure a regular review and update of the policy with all staff.
- Encourage staff to use a range of learning and teaching strategies to best meet the needs of pupils.
- Assist staff avail of numeracy courses to enhance their understanding and teaching of numeracy.
- Organise school-based INSET as required.
- Provide guidance in the effective use of comparative performance data, including benchmarking.
- Encourage management to offer support for identification, dissemination and implementation of good practice in the learning and teaching of numeracy.
- Undertake on-going monitoring and evaluation at individual, class and whole school level.
- Report to Principal and Governors about the school's numeracy development.

Monitoring and Evaluation of the Policy

The Mathematics and Numeracy Policy is:

- Agreed with the Board of Governors;

- Shared with teachers;
- Shared with parents;
- Available to the general public via the school website;
- Reviewed and updated by the Mathematics and Numeracy Co-ordinator.

Consistency with Other School Policies

The content of the Numeracy Policy is checked to ensure consistency with other school policies for:

Learning and Teaching

Assessment

Homework

Special Educational Needs

ICT

Positive Behaviour

Pastoral Care.

