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# Killean Primary School



# Numeracy Policy

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## CONTEXT

Whilst this policy has been agreed by all staff to define our particular principles, practices and provision, it should be noted that our work lies within the wider context of the NI education system. The following are the main structures within which we operate:-

- The stated vision of the Department of Education for Northern Ireland: “to ensure that every learner fulfils his or her potential at each stage of his or her development.”  
(DE 2010).
- The overall aim of the NI Curriculum: “The Northern Ireland Curriculum aims to empower young people to achieve their potential and to make informed and responsible decisions throughout their lives.”  
(DE 2008)
- The characteristics of effective practice, defined in “*Every School a Good School – a Policy for School Improvement*” (DE 2009), grouped under the four headings:
  - Child Centred Provision
  - High Quality Teaching and Learning
  - Effective Leadership
  - A School Connected to its Local Community
- The prominence of Literacy and Numeracy within the NI Curriculum, emphasised in “*Count, Read: Succeed- a Strategy to Improve Outcomes in Literacy and Numeracy*” (DE 2011) :

“ Literacy and numeracy are at the very heart of the revised curriculum.”  
(para.2.3)

“Developing literacy and numeracy therefore must be central elements of a school’s delivery of the revised curriculum, and of the support and professional development for teachers in implementing the curriculum.”  
(para. 2.5)
- The characteristics of the most effective practice in numeracy provision in NI primary schools, identified by ETI in “*Better Numeracy in Primary Schools*” (ETI 2010)

## **INTRODUCTION**

This policy will set out the agreed key principles and practices that guide the development of numeracy in our school, drawing on the indicators of effective provision from *“Every School a Good School”* using the four headings noted above.

At Killean PS we believe that numeracy skills are the key to future educational success and to ensuring that each child has the opportunity to develop as an individual, as a contributor to society and as a contributor to the economy and environment.

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**

It is our aim at Killean PS:

- To engender in children a positive life long attitude towards numeracy that will help build pupil confidence.
- To develop creativity, thinking skills and personal capabilities.
- To enable the children to communicate effectively through the medium of numeracy using its language, symbols and diagrams and to employ these with increasing confidence and independence
- To foster an understanding of numeracy through a process of enquiry, investigation and play.
- To provide children with opportunities to use practical equipment and apparatus in order to bring them to a fuller understanding of numeracy concepts.
- To help children to use their skills and learned concepts to problem solve with increasing confidence and independence.
- To enable children to appreciate the value of mathematics and acquire the numeracy skills to function effectively in society.

- To provide a wide and challenging range of learning opportunities, including mental calculation in a range of contexts, tasks requiring strategic thinking, higher-order questioning, collaborative problem solving, and increased use of I.C.T.

## **OBJECTIVES OF NUMERACY POLICY:**

At Killean PS 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
- 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 present their work

From: Requirements for Using Mathematics, NI Primary Curriculum, p.6 (CCEA 2007)

## **STATUTORY REQUIREMENTS:**

The detailed statutory content requirements are set out in the NI Curriculum (primary) document (CCEA 2007) and together with the progression exemplified in the revised Lines of Development document (CCEA), informs our Scheme of Work for Mathematics.

The NI Curriculum (primary) document also sets out guiding principles, which we endorse and have agreed to include in our policy:

Foundation Stage (p.23), including:

- Activities should involve children in 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

Key Stage One and Two (p.57–60), including:

- 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
  - in real-life situations

**CHILD-CENTRED PROVISION:**

The following ESaGS indicators will be reflected in our provision for Mathematics and Numeracy:

<ul style="list-style-type: none"> <li>• Decisions on planning, resources, curriculum and pastoral care reflect at all times the needs and aspirations of the pupils within the school</li> </ul>
<ul style="list-style-type: none"> <li>• A clear commitment exists to promoting equality of opportunity, high quality learning, a concern for individual pupils and a respect for diversity</li> </ul>
<ul style="list-style-type: none"> <li>• A school culture of achievement, improvement and ambition exists with clear expectations that all pupils can and will achieve to the very best of their ability</li> </ul>
<ul style="list-style-type: none"> <li>• Effective interventions and support are in place to meet the additional education and other needs of pupils and to help them overcome barriers to learning</li> </ul>

- There is a commitment to involve young people in discussions and decisions on school life that directly affect them and to listen to their views

## Teaching and Learning – Inclusion:

1. In order to ensure continuity and progression we have updated our planning. This planning and teaching have been further enhanced to take account of the needs of all learners (including gifted and talented children) and developed our Half-term schemes for each class reflecting differentiation.
2. Each class teacher will monitor, identify and address underachievement as soon as it begins to emerge. They will set targets and identify actions to meet the needs of each pupil requiring additional support, using a multi-sensory approach; class work is differentiated to meet the needs of all pupils - classroom assistants provide support to individual children and small groups – parents are kept informed through parent teacher meetings( 1<sup>st</sup> term, SEN reviews) and on request and written reports(pupil profile in June, I.E.Ps) - range of resources are used including. Interactive Whiteboards, New Heinemann Maths scheme, Problem solving Toolkit, Apex Maths, maths games, Mental Wave books, ICT resources and useful websites.
3. Under-achieving children are identified through continuous classroom observations, assessment of pupil's outcomes and tracking of individual progress through relevant data.
4. Staff use assessment tools to identify children with special educational needs, low and underachievers as shown by discrepancies between their standardised scores in Numeracy and their NNRIT scores.
5. Assessment tools include; Base line assessments, PIM end of year tests P.3 – P.7, Quest (P.3), End of Key Stage Tests, Computer Based Assessments( NINA, NILA, INCAS) All are analysed by SIMS for planning, setting class and individual targets and interventions.
6. Every year in P.2 (2<sup>nd</sup> Term) we implement a 10 week Numeracy Catch-Up Programme with a trained teacher and classroom assistant in pairs/small groups, for pupils who require further intervention on developing basic number skills and understanding mathematical language.

7. All children on the SEN register have Individual Education Plans with SMART targets, which are reviewed 3 times a year. Pupils and parents are kept involved and informed at all times of setting and reviewing targets. These children are moved through the 5 stages of the Code of Practice as appropriate. (See SEN Policy).

### **Role of Homework:**

The use of homework reflects our school's Homework Policy. The purpose of homework is to:

- Reinforce work done in school
- To give practice
- To allow pupils to further investigate a topic

Pupils may be given a variety of tasks, which could include both practical and written activities and in some cases, rote learning activities.

### **HIGH QUALITY TEACHING AND LEARNING:**

The following ESaGS indicators will be reflected in our provision for Mathematics and Numeracy:

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| ● A broad and relevant curriculum is provided for the pupils.  |
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| ● An emphasis on literacy and numeracy exists across the curriculum.   |
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| ● Teachers are committed and enthusiastic, enjoying a positive relationship with their pupils and with other school-based staff and dedicated to improving learning. |
|  |
| ● Teachers use adaptable, flexible teaching strategies that respond to the diversity within the classroom.   |
|  |
| ● Assessment and other data is used to effectively inform teaching and learning across the school and in the classroom and to promote improvement.                   |
|  |
| ● Rigorous self-evaluation is carried out by teachers and the whole school, using objective data and leading to sustained self-improvement.                          |
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- Teachers reflect on their own work and the outcomes of individual pupils.

- Education outcomes reflect positively on the school and compare well, when benchmarked measurement is undertaken, against the performance of similar schools.

### **Subject Organisation:**

At Killean P.S, all staff provide an outline and overview of the Teaching & Learning to be achieved through our Half-term schemes of work and Daily notes. These plans are monitored and evaluated to ensure there is a breadth & balance across all areas of mathematics by;

- providing continuity and progression
- ensuring there are no gaps/ overlays as pupils move through each key stage
- ensuring that key concepts(eg. Length, place value..) are revisited regularly throughout the year
- ensuring that pupils have experience of working within each Attainment of Number, Measures, Shape & Space and Handling Data every half term.

1. Teachers draw on their professional expertise to use a range of activities and a variety of teaching strategies including; whole-class teaching, small group work(mixed and ability groups) and individual work, differentiated where appropriate. This varied approach recognises that different children learn in different ways and there is no single approach to teaching that will suit all pupils.
2. Each class teacher will provide a range of opportunities for pupils to be able to apply their mathematical knowledge and understanding across the curriculum and in real-life situations.
3. Long term planning is based on recommendations on Clounagh VLE/ SELB and reviewed every year. Medium term planning is evaluated every half-term and short-term planning is evaluated daily/weekly to inform future planning. All plans are kept in a file in each class and copies of half-term plans are also saved into folders on RM Staff and reviewed by the Numeracy co-ordinator.

### ***Approaches to learning and teaching of mental mathematics:***

- *Interconnections between developing a bank of known number facts, an increasing range of calculations and an increasing range of mental calculation strategies*
- *Time allocation for mental mathematics*
- *Use of games*

- *Use of ICT*
- *Assessment of mental mathematics*
- *Progression for mental mathematics within and across year groups*

***Approaches to learning and teaching in Number:***

- *Understanding the number system – counting, sequencing, place value, fractions, decimals, percentages*
- *Calculations – four operations and their relationships*
- *Strategies to encourage understanding of operations, not just ability to compute answers*
- *Application of calculation skills in mathematical problem solving, across the curriculum and in real- life situations, especially in selection of operation(s) required*
- *Application of financial capability skills*

***Approaches to learning and teaching in Measures:***

- *Progression: direct comparison of two objects, more than two objects, measuring using non-standard units, recognising need for standard units, measuring using standard units*
- *Strategies used to enable children to develop accuracy in estimation before measuring*
- *Use of practical activities*
- *Opportunities for children to select the appropriate measuring tools and units of measurement*

***Approaches to learning and teaching in Shape and Space:***

- *Importance of practical experiences to investigate properties of shapes*
- *Emphasis on naming shapes by reference to their particular properties*
- *Exploration of position and movement in real life contexts*
- *Systematic development of language from informal to formal mathematical definitions*
- *Importance of experiencing irregular shapes as well as regular shapes*

***Approaches to learning and teaching in Handling Data:***

- *Emphasis placed on the application of data handling skills to investigate and make decisions: Identify a question, decide on information required, decide how to gather information, record and analyse information to answer original question, decide how best to display information*
- *Systematic development of understanding of probability: from informal language to describe likelihood of events occurring, through formal language of increasing accuracy to numerical quantification of likelihood.*
- *Use of ICT packages to speed up process of constructing graphs and charts*

### **Approaches to learning and teaching in Processes:**

- *Agreed definition of Processes*
- *Progression of Processes skills development within and across year groups*
- *Opportunities for children to develop Processes skills e.g. through choosing materials and mathematics required, using a range of problem –solving strategies*
- *Opportunities for children to plan their own work and work systematically*
- *Use of open ended questions to encourage children to explain their thinking*
- *Opportunities for children to work collaboratively and to compare ideas and methods with others*

### **TS and PCs/Cross Curricular Opportunities for Numeracy Development**

We aim to develop Thinking Skills and Personal Capabilities and to make cross-curricular links. The pupils are given opportunities to practise and apply the skills, knowledge and understanding acquired through language lessons to other areas of the curriculum.

*-Pupils are encouraged to use their visual, auditory and kinaesthetic channels for better learning and a range of active learning strategies is used to engage children.*

*- Pupils are given opportunities to develop good social skills, to work effectively as part of a team, to develop oral language and oral skills. Thinking Skills and Personal Capabilities are threaded through many of everyday classroom activities.*

*- Teachers make good use of effective questioning to promote thinking and reasoning skills. Children are given opportunities to ask and answer questions, to predict, give reasons and express opinions, think about similarities and differences, sequence and order events and information*

*-teachers are aware of the importance of time to listen to children, and children are encouraged to listen to each other,*

*- Teachers model thinking strategies and pupils are encouraged to reason and think and consider all options and to give reasons for answers.*

## **Resources**

At Killean P.S we use a range of schemes to enhance our pupils Numeracy experiences, eg; New Heinemann, Rapid Maths, Apex Maths, Mental Wave, Problem-solving Toolkit, Collins New Primary.....These schemes are further supplemented by teacher-generated worksheets, games and ICT resources. Each teacher has the necessary equipment for their own class, which is stored in their classroom but it is the policy of our school that teachers co-operate and share equipment when necessary. All resources are readily available and accessible to children to help develop their mathematical skills. There is also a designated Numeracy store where extra resources are kept to supplement work and aid classroom activities.

### **The Use of ICT**

We aim to make the maximum use of I.C.T. across the curriculum to promote the pupils' Numeracy skills, as well as developing competence in I.C.T. skills. This involves the use of computers and the Interactive White Board.

*-Pupils have opportunities to gain confidence in the use of I.C.T., for example in, using spreadsheets and databases*

*- The children's work is used to enhance the school's website. [www.killeanps.com](http://www.killeanps.com)*

*-The range of I.C.T. resources available include: Desktops, Laptop suite, laptop with access to C2K network, Interactive White Board and digital cameras..*

*-The use of information and communication technology supports the teaching of Numeracy at all levels, ICT is used at whole-class, group and independent level.*

*-The interactive white board enables numeracy problems to be read and shared, the different process and mental maths strategies can be modelled effectively. Pupils have opportunities to complete interactive activities.*

*-A range of websites and software are used to promote and consolidate different mathematical skills and to enhance numeracy teaching.*

*-I.C.T planning is included in our half term and daily/weekly notes using a checklist of skills in the five 'E's. I.C.T accreditation is awarded at end of ks1 and ks2.*

### **Assessment and Target-Setting:**

Assessment for Learning strategies is a key component of the Teaching and Learning in Numeracy. The learning intentions and success criteria are shared with the children. The marking strategies outlined in the school marking and assessment policies ensures the pupils' Numeracy experience involves discussing and reformatting their work for improvement. Ongoing monitoring of pupils Numeracy skills is a key part of the teaching and learning in each class.

The Numeracy coordinator engages in book monitoring of Numeracy class work. Teachers gather work samples for pupil portfolio in Numeracy and use this to gauge pupils progress.

Use is made of data to inform classroom and whole school practice in Numeracy. We use P1 Baseline assessments, end of year PIMS,N NRIT, end of key stage assessments and CBA to inform future planning. Teachers evaluate Numeracy planners on a half termly basis. Assessments and plans can be viewed on RM staff.

Teachers use the assessment tools outlined above to;

1. Identify pupils who are under achieving. Strategies for increasing their attainment are implemented and evaluated on a termly basis.
2. Identify pupils for whom extension and differentiation programmes are to be developed.
3. Identify key factors for their own teaching in the current year.
4. Consider areas of their own teaching that require training/ further development.
5. Set year on year targets for individual classes, key stages and whole school and areas for development.

### **EFFECTIVE LEADERSHIP:**

The following ESaGS indicators will be reflected in our provision for Mathematics and Numeracy:

- An effective school development plan is in place, providing clear and realistic targets for improvement based on a sound vision for the school.

- Governors understand their responsibilities and provide clear strategic direction as well as support and challenge to the Principal in carrying forward the process of improvement.

- School leaders demonstrate a commitment to providing professional development opportunities for staff, particularly teachers, and promote a readiness to share and learn from best practice.

- Teachers are given the opportunity to share in the leadership of the school.

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| <ul style="list-style-type: none"><li>• The resources at the disposal of the school are managed properly and effectively, with appropriate arrangements in place for financial management, attendance management, and working relationships.</li></ul> |
|  |
| <ul style="list-style-type: none"><li>• School leaders monitor and evaluate effectively school outcomes, policies, practices and procedures and the School Development Plan itself</li></ul>   |

A full Numeracy audit will be conducted every 3 years to identify areas for improvement. At least one component of Numeracy features on each yearly strand of The School Development Plan. These components are determined following:

- Whole school review
- Co-ordinator training
- Analysis of current attainment/practice in literacy
- Educational change and trends

**The Board of Governors:**

Regular reports are made to the governors on the progress of Numeracy provision and on the standards being achieved by the school.

***Role of Numeracy Co-ordinator***

**Job specification:**

To lead the development of Numeracy throughout the school, in conjunction with the Principal and Senior Management Team, reporting to the Principal and/or Board of Governors.

**Responsibilities:**

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 teachers avail of numeracy courses to enhance their understanding and teaching of Numeracy
- To 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

**A SCHOOL CONNECTED TO ITS LOCAL COMMUNITY:**

The following ESaGS indicators will be reflected in our provision for Mathematics and Numeracy:

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| <ul style="list-style-type: none"> <li>• Good relationships that facilitate engagement and communication between the school and its parents and the wider community that it serves</li> </ul>             |
| <ul style="list-style-type: none"> <li>• The school and its teachers are held in respect by parents and the local community who in turn actively support the work of the school</li> </ul>                |
| <ul style="list-style-type: none"> <li>• The school uses its involvement in particular programmes( e.g. Extended Schools) effectively in meeting the needs of the community and nearby schools</li> </ul> |
| <ul style="list-style-type: none"> <li>• Good relationships and clear lines of communication are in place between the schools and the education agencies that support it</li> </ul>                       |

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| <ul style="list-style-type: none"><li>• The school works closely with other relevant statutory and voluntary agencies whose work impacts on education, especially Health, Social Services and the Library Service and, where appropriate, local Neighbourhood Renewal groups</li></ul> |
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We believe that the education of our pupils is a partnership involving teachers, parents, pupils and the wider community. Regular and positive communications will be made between teachers and parents, on a formal and informal basis.

**Links with parents:**

- *Reporting to parents: Parents information meetings, verbal and written reports on children's progress (including CBA/NINA meetings), feedback via comments in children's books*
- *Helping parents support their children's learning: applying mathematics learning at home and in the real world, effective strategies to support learning through homework (including mathematics games), and other family learning programmes*
- *Use of school website to showcase high quality mathematics learning and teaching*
- *Each class teacher sends home a flyer at the beginning of each year outlining Teaching & Learning objectives for the year*

**Links with other schools:**

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- *Clusters for staff development, visits to other primary schools to share and compare effective practice, meetings with post primary schools to ensure cross phase consistency and to manage transition for children*

**Links with the Community:**

- *ECO Schools projects, Extended Schools projects*
- *Visits to local businesses/ from local trades people, where mathematics is used in their work e.g. shops, builders, kitchen and furniture suppliers and fitters, tilers, farmers*

**Links with external education support agencies:**

- *Staff development sessions from Educational Psychology Service, SELB Special Needs service, ACE Team, SELB Numeracy Support,*



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### **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,  
Marking, Health and Safety

### **MONITORING and EVALUATION of POLICY:**

The Numeracy Policy is:

- Agreed with the Board of Governors
- Shared with parents
- Available to the general public via the school website
- Regularly reviewed and updated in consultation with school stakeholders: staff, children, parents and governors