



---

## **Maths Policy**

### **Introduction**

The Maths Whole School Policy was reviewed by the staff of Kiltealy National School in the academic year 2020/2021 in adherence to the National Strategy to Improve Literacy and Numeracy among Children and Young People 2011-2020. It references the existing policy of Kiltealy National School and includes additional strategies/amendments that have been made to current practice in recent years.

### **Rationale**

The revision of the maths policy was undertaken to ensure changes in staffing and the growth in class sizes, which the school has experienced in recent years are reflected in this document. These changes have meant that a framework for the teaching of Maths in the school is important so as to ensure that there is continuity and consistency in the Maths curriculum from class to class and to ensure that all areas of the curriculum are adequately addressed during the child's primary schooling.

This plan was designed in order to:

- benefit teaching and learning in our school
- conform to principles of learning outlined in the Primary School Curriculum
- conform with The National Strategy to Improve Literacy and Numeracy among Children and Young People 2011-2020 and the current emphasis on School Self Evaluation.
- review the existing plan for mathematics
- review, consolidate, clarify and build upon aspects of our existing school plan for Mathematics
- improve the standard of Mathematics in our school
- organise and coordinate work being carried out already by staff in Mathematics
- establish and provide a resource for staff members which is structured and researched
- provide a framework within which more specific planning can take place
- provide information for teachers, parents, Board of Management members and all other interested educational partners of the school community

### **Vision**

Our mission is to provide a school environment that is conducive to learning and to the development of the whole person, where children can achieve their full potential; spiritually, physically, academically and socially. This plan will focus on meeting the needs of the children in the area of maths, ensuring they have the mathematical ability to cope with real life maths as well as preparing them for future learning. As our partners in the development of their children's mathematical attainments, the involvement of parents will be encouraged as much as possible.

## **Aims of the Maths Curriculum**

The aims of the primary mathematics curriculum are:

- To develop a positive attitude towards mathematics and an appreciation of both its practical and its aesthetic aspects.
- To develop problem-solving abilities and a facility for the application of mathematics to everyday life.
- To enable the child to use mathematical language effectively and accurately.
- To enable the child to acquire an understanding of mathematical concepts and processes to his/her appropriate level of development and ability
- To enable the child to acquire proficiency in fundamental mathematical skills and in recalling basic number facts.
- To assess at regular intervals using a variety of methods
- To share resources, ideas and practice

## **Broad Objectives**

When due account is taken of intrinsic abilities and varying circumstances, the Maths curriculum should enable the child to:

### **Skills Development**

- Apply mathematical concepts and processes, and plan and implement solutions to problems, in a variety of contexts.
- Communicate and express mathematical ideas, processes and results in oral and written form
- Make mathematical connections within mathematics itself throughout other subjects, and in applications of mathematics in practical everyday contexts.
- Reason, investigate and hypothesise with patterns and relationships in mathematics.
- Implement suitable standard and non-standard procedures with a variety of tools and manipulatives.
- Recall and understand mathematical terminology, facts, definitions, and formulae.

### **Number**

- Understand, develop and apply place value in the denary system (including decimals)
- Understand and use the properties of number.
- Understand the nature of the four number operations and apply them appropriately.
- Approximate, estimate, calculate mentally and recall basic number facts.

- Understand the links between fractions, percentages and decimals and state equivalent forms.
- Use acquired concepts, skills and processes in problem-solving.

### Algebra

- Explore, perceive, use and appreciate patterns and relationships in numbers
- Identify positive and negative integers on the number line.
- Understand the concept of a variable, and substitute values for variables in simple formulae, expressions, and equations.
- Translate verbal problems into algebraic expressions.
- Acquire an understanding of properties and rules concerning algebraic expressions
- Solve simple linear equations
- Use acquired concepts, skills and processes in problem-solving.

### Shape and Space

- Develop a sense of spatial awareness
- Investigate, recognize, classify and describe the properties of lines, angles, and two-dimensional and three-dimensional shapes.
- Deduce informally relationships and rules about shape
- Combine, tessellate and partition two-dimensional and combine and partition three-dimensional shapes.
- Draw, construct and manipulate two-dimensional and three-dimensional shapes.
- Identify symmetry in shapes and identify shape and symmetry in the environment.
- Describe direction and location using body-centred (left/right, forward/back) and simple co-ordinate geometry.
- Use acquired concepts, skills and processes in problem-solving.

### Measures

- Know, select and use appropriate instruments of measurements
- Estimate, measure and calculate length, area, weight, capacity and average speed using non-standard and appropriate metric units of measurement.
- Estimate, measure and calculate angles, time, money and scale using non-standard and appropriate units of measurement.
- Recognize and appreciate measures in everyday use.
- Use acquired concepts, skills and processes in problem-solving.

### Data

- Collect, classify, organize and represent data using concrete materials and diagrammatic, graphical and pictorial representation.

- Read, interpret and analyse tables, diagrams, bar charts, pictograms, line graphs and pie charts.
- Appreciate, recognize and express the outcomes of simple random processes.
- Estimate and calculate using examples of chance.
- Use acquired concepts, skills and processes in problem-solving.

### Strands and Strand Units

The curriculum comprises five strands, which should be seen and taught as interrelated units in which understanding in one area is dependent on and supportive of ideas and concepts in other strands. Linkage within the subject is essential and while number is essential as the medium for maths calculations, all other areas should receive a corresponding degree of emphasis.

The Number strand begins with a section called Early Mathematical Activities which is distinct to the infant syllabus and is listed hereunder as if it is a separate strand.

### Strands

Strands		Infant Classes		1 <sup>st</sup> & 2 <sup>nd</sup> Class		3 <sup>rd</sup> & 4 <sup>th</sup> Class		5 <sup>th</sup> & 6 <sup>th</sup> Class
Early Mathematical Activities		Classifying Matching Comparing Ordering						
Number		Counting Comparing and Ordering Analysis of Number		Counting and Numeration Comparing and Ordering Place Value Operations <i>Addition</i> <i>Subtraction</i> <i>Multiplication</i> <i>Division</i> Fractions <i>Subtraction</i> ( <u><b>borrow &amp; payback method</b></u> ) Fractions		Place Value Operations <i>Addition</i> <i>Subtraction</i> <i>Multiplication</i> <i>Division</i> Fractions Decimals		Place Value Operations <i>Addition</i> <i>Subtraction</i> <i>Multiplication</i> <i>Division</i> Fractions Decimals Percentages Number Theory
Algebra		Extending Patterns		Exploring and Using Patterns		Number Patterns and Sequences Number Sentences		Directed Numbers Rules and Properties

						Variables Equations
Shape and Space		Spatial Awareness 2D Shapes 3D Shapes	Spatial Awareness 2D Shapes 3D Shapes Symmetry Angles	2D Shapes 3D Shapes Symmetry Lines and Angles		2D Shapes 3D Shapes Symmetry Lines and Angles
Measures		Length Weight Capacity Time Money	Length Area Weight Capacity Time Money	Length Area Weight Capacity Time Money		Length Area Weight Capacity Time Money
Data		Recognising and Interpreting Data	Representing and Interpreting Data	Representing and Interpreting Data Chance		Representing and Interpreting Data Chance

### Approaches and Methodologies

The approaches and methodologies that teachers will use in their delivery of the maths curriculum will include:

- The use of Manipulatives – Where practical and possible, children should have access to and use a broad range of mathematical equipment during lessons
- Talk and Discussion as an integral part of the learning process
- Active Learning and Guided Discovery
- Collaborative/Cooperative Learning
- Using the Environment
- Problem Solving

### Assessment and Record Keeping

Assessment is an integral part of the teaching and learning process. The strands of the maths programme will be assessed using a variety of assessment tools. Much of the assessment of the children's access to the Maths Curriculum is through informal teacher observation and monitoring. This includes questioning, observing their contribution during lessons, evaluating their grasp of concepts while engaged in collaborative work and scrutinising their written work. An important aspect of formative assessment is the feedback given to the learner and this can be done verbally or through written comments. The purpose of this correction is to show the children where mistakes

have been made and to encourage avoidance of these mistakes in the future. The active participation of the learner in their own learning is therefore maximised. (Assessment For Learning)

More formalised teacher-designed tasks and tests may be used throughout the year to examine particular aspects of the children's learning. (Assessment of Learning)

Standardised tests must be administered to children at two stages during their primary schooling under the terms of Circular 0138/2006. In Killealy National School, standardised tests are administered to all children from 1st to 6th. The tests are administered during the month of May and the results are shared with parents through the End of Year Reports. The New Drumcondra Primary Maths Test is in use since 2019 replacing the Sigma T Mathematics. This test is used to identify children who may require learning support intervention, subject to availability of resources and timetabling. It is noted that DES guidelines continue to advocate intervention in literacy prior to assigning learning support time for maths. However, team teaching in maths, using the Special Education teachers for in-class support has been a feature of the school for a number of years to accommodate larger classes and weaker classes.

### **Children with Different Needs**

In the teaching of maths in Killealy National School, we aim to ensure that all are included. Within the classroom, the teachers engage in planning that allows for different levels of ability. While there is over-teaching for weaker children, additional activities may be designed to challenge pupils of higher ability. This differentiation allows children to access the curriculum at a level commensurate with their ability. Each child should derive a sense of achievement in maths.

The Special Education Teachers support the class teachers through a collaborative approach. The aim is to address difficulties being experienced and allow the children to progress with their maths understanding. The needs of children with exceptional ability will be identified and appropriate responses will be considered.

In certain circumstances, consideration will be given to a child in the senior classes working on a separate curriculum to the rest of the class. This will only be considered following consultation with the child's parents and with the child's previous teachers and following extensive intervention by the Special Education Team and in some instances following consultation with Education Psychologists and SENO.

### **Equality of Participation and Access**

All children are included and participate in the Maths Curriculum. Equal opportunities are given to boys and girls to take part in a meaningful way in the various facets of the Maths programme in Killealy National School.

Where identified special provision may be made as follows (as per identifying for provision of SEN policy):

- Children experiencing any form of educational disadvantage.

- Children with disabilities.
- Children with literacy problems.
- Children for whom English is not their first language.

This provision may be as outlined above under the heading of children with different needs.

### **Timetabling**

A weekly minimum of three hours twenty five minutes is allocated for maths in the Infant Classes and four hours ten minutes from 1st to 6th. Additionally, maths can be integrated into other subjects, such as graph-making in geography, scale, STEAM activities etc.

### **Resources**

- Equipment, textbooks (Planet Maths: Juniors-2<sup>nd</sup> Class, Busy at Maths: 3<sup>rd</sup> – 6<sup>th</sup> Class), mental maths books, PDST manuals, supplementary materials, ICT
- Mathematics resources/materials centrally located in staffroom and SET hallway storage. Mathematics equipment is purchased by Ms. Duff as Maths Co-ordinator.
- Individual teachers are responsible for managing resources in their rooms.

### **ICT**

- Each class has an Interactive Whiteboard which teachers can use to enhance the teaching of Mathematics.
- Ipads (stored in Principal's office) are available with at least one between two which can be used to enhance the teaching of Mathematics through educational interactive games.
- Staff share opportunities for enhancing pupil learning in mathematics through ICT.

### **Homework**

Homework can involve revision of the day's work in school or mental maths problems. Homework assignments can include written activities, research, experimentation with a view to problem solving, construction/drawing activities or memorisation of salient maths facts/tables. It is desirable for parents to play an active role in these homework activities.

Teachers are mindful of the different levels of ability of children when setting homework assignments and of the differing rates of work. Parents are encouraged to liaise with teachers and advise of difficulties with homework assignments so that the quantity of work given may be amended in certain circumstances.

### **Individual Teachers' Planning and Reporting**

This plan in Maths and the Curriculum Documents will inform and guide teachers in their long and short term planning of work. Each teacher will keep a Cuntas Míosúil, a copy of which will be submitted to the Principal each month and which will inform our progress and needs when reviewing our Maths policy.

### **Multi-grade Classes**

To ensure that all teachers are familiar with the curriculum for their classes, this policy contains a plan to which they can refer for each class grouping. It is expected that, on changing classes, teachers would familiarise themselves with the curriculum of their new class grouping and that there would be particular collaboration between teachers at this time.

Kiltealy National consists of multi-grade classes. This carries with it particular challenges for the teaching of maths. Progression in maths must be carefully structured and it is important to have a solid foundation before moving from one level to another. For this reason, separate textbooks, appropriate to the stage of mathematical development of the children will be used for each class level in multi-grade classes. This, in turn, will have ramifications for timetabling and the use of concrete materials. In their planning, teachers in multi-grade classes will need to be mindful of the difficulties inherent in this scenario. On a year by year basis, the school principal, in consultation with the Special Education team and class teacher will examine the needs of each class grouping with a view to deciding on the best method of further supporting the children's learning in maths for example one to one support, small group support or team teaching may take place.

### **Staff Development**

Staff are actively encouraged to identify and participate in courses of professional development which will be of benefit to them and consequently to the school. The skills learned through these courses can be shared with other teachers during Croke Park hours. Staff development needs are identified at regular staff or In-School Management meetings and these may be addressed through discussion, drawing on internal expertise, the organisation of a staff development session, engagement of external expertise and/or the provision of required resources.

### **Parental Involvement**

As parents are the primary educators, their involvement is considered an important aspect to successful implementation of the Maths Curriculum. Through their exposure to common maths concepts in the home and local environment, children can be equipped with necessary maths skills. In Kiltealy National School, from the very outset, the vital role of parents is highlighted in the School Information Booklet, which is distributed in advance of the induction meeting for parents of Junior Infants. Throughout the school, the input of parents is actively encouraged through the children's



homework diary. The Parents' Association may also aid the school in multiple ways, through provision of resources and support for the teachers and parents.

### **Success Criteria**

The success of this plan will be evaluated through teacher's monitoring and feedback from the education partners. Standardised test results will also be used to chart progress in the delivery of the maths curriculum. The continuation of The Maths Problem Solving Initiative undertaken as part of our School Improvement Plan in the past will continue.

### **Policy Implementation and Review**

This policy will be monitored on an ongoing basis with formal review within three years.

This plan was ratified by the Board of Management of Killealy National School on:

Date: \_\_\_\_\_

Signed: \_\_\_\_\_ Chairperson

### **Useful websites**

- [www.topmarks.com](http://www.topmarks.com)
- [www.kidsnumbers.com](http://www.kidsnumbers.com)
- [www.mathsplayground.com](http://www.mathsplayground.com)
- [www.coolmath4kids.com](http://www.coolmath4kids.com)
- [www.mathsisfun.com](http://www.mathsisfun.com)
- [www.xls.com](http://www.xls.com)
- [www.seomraranga.com](http://www.seomraranga.com)
- [www.primaryresources.co.uk/](http://www.primaryresources.co.uk/)
- [www.math-drills.com/](http://www.math-drills.com/)
- [www.primaryhomeworkhelp.co.uk/maths/](http://www.primaryhomeworkhelp.co.uk/maths/)

This list is not exhaustive and will vary and adapt as new websites come online.