

# *Scoil Na Mainistreach*

Quin, Co. Clare.

Telephone: 065 6825785

Fax: 065 6825819

e-mail: [mainistir.quin.ias@eircom.net](mailto:mainistir.quin.ias@eircom.net)

Website: [www.scoilnamainistreach.net](http://www.scoilnamainistreach.net)



*We do our best, we show respect.*

## **MATHS POLICY OF SCOIL NA MAINISTREACH. QUIN.**

### **Introductory Statement**

This original plan was drafted by the staff of Scoil na Mainistreach, Quin in May 2006 as a result of in-service training in this subject area. This policy review took place in November 2012 in consultation with all school partners. The key elements of this review were to co-ordinate the maths teaching in the school and to ensure consistency across the maths programme. In this reviewed plan the staff targeted the importance of a consistent maths vocabulary in the school. This reviewed plan is to be read in line with the school Self-evaluation Report and School Numeracy Improvement Plan which will be published in 2013. Whilst drafting this plan the review team were cognisant of changes in legislation in relation to the National Strategy to Improve Literacy and Numeracy among Children and Young People 2011-2020 entitled; *The Literacy and Numeracy Strategy for Learning and Life*.

### **Rationale**

The rationale for choosing to review the Maths policy was:

To conform to principles of learning outlined in the Primary School Curriculum 1999

- To review and evaluate the existing mathematics programme being implemented.
- To evaluate the current methodologies for the teaching of mathematics in Scoil na Mainistreach and to develop our teaching practices in line with current best practice as outlined in the following circulars published by the DoES at [www.education.ie](http://www.education.ie)

0056/2011: Initial Steps in the Implementation of The National Literacy and Numeracy Strategy

0066/2011: Initial Steps in the Implementation of The National Literacy and Numeracy Strategy

0018/2012: Supporting Assessment: Standardised Testing in Primary Schools

0039/2012: Implementation of School Self Evaluation – Primary

- To develop a consistent approach to maths teaching, content and vocabulary in our school.
- To benefit teaching and learning in our school.

## **Vision and Aims and Objectives**

### **(a) Vision**

In Scoil Na Mainistreach, we are committed to the holistic development of all pupils in order to assist them to contribute and play a fulfilling role in their own community. We see the development of their mathematical skills in all of the five strand areas of the revised curriculum as being central to this process. We believe that the development of a culture of problem solving in mathematics and across the wider curriculum will greatly benefit the children in achieving their full potential both as individuals and as responsible members of society.

## **(b) Aims**

By implementing this plan the Scoil na Mainistreach teaching team will be endorsing the aims of the Primary School Curriculum for Mathematics pp (12-14)

- *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 ensure that revision and assessment form an integral part of our maths teaching.*

## **(c) Broad Objectives**

- Apply mathematical concepts and processes and plan and implement solution 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.

## **Section 1: Curriculum Content**

- ***Strands and strand units***
- ***Approaches and methodologies***
- ***Assessment and record keeping***
- ***Children with different needs***
- ***Equality of participation and access***

### **a. Strand and Strand Units**

- In order to ensure that all teachers are familiar with the curriculum for their class level each teacher is required to review the curriculum programme content in relation to his/her class. A copy of the content and planning for each class is tabulated. **(Appendix 1)**
- Where multi-class situations involving two classes arise it is the policy of Scoil na Mainistreach that the teacher will continue to teach two class programmes. In the case of split classes two programmes will also be taught. It is the policy of the school that the teachers involved in the split class situation will be required to liaise with each other to ensure continuity in the use of content, resources and methodologies.

- A review of current practices indicated the need to
  - 1) *Increase the use of manipulatives at senior class level*
  - 2) *The promotion of more active learning in Maths.*
  - 3) *Increase emphasis on oral/mental maths*
  - 4) *Develop a consistent Maths Vocabulary across the school*
  - 5) *Increase development of problem solving strategies.*
  - 6) *Further develop the process of self-assessment as a learning tool throughout the school.*

A detailed outline of the Content of the Maths Programme from 1<sup>st</sup> to 6<sup>th</sup> classes is outlined in Appendix 1.

## **b. Approaches and methodologies**

As outlined in the Teacher Guidelines: Mathematics pp. 30-67, in the mathematics curriculum the strands and strand units are viewed through the lens of the approaches and methodologies. In our school the following approaches and methodologies will be adopted for the teaching of mathematics:

- All children will be provided with the opportunity to access the full range (all strands) of the mathematics curriculum both in the mainstream classroom and in the case of pupils with special needs in the learning support classrooms.
- Emphasis will be placed on the use of active learning strategies, e.g. dice, cards, dominoes, spinner games, games devised by the children themselves will be used to support particular areas of mathematics
- All classes will encourage the use of mental mathematics and tables will be taught and learned
- Resources will be examined to ensure they are in line with curriculum guidelines.
- The use of concrete material will be increased in middle and senior classes.
- Children from 4<sup>th</sup> to 6<sup>th</sup> will be allowed to use calculators for certain operations or to check answers.
- An emphasis will be placed on the integration of the maths programme with other curricular areas such as History, Geography, Science and Nature. Displays of surveys, experiments and mathematical activities will be encouraged in the school.
- Accuracy in estimation skills will be developed through practice and will be encouraged through simple class/school competitions i.e. estimate the no. of sweets in the jar, the weight of the cake etc.
- The following are the agreed strategies in the teaching of operations and concepts
  - Addition - top to bottom or bottom to top ...
  - Subtraction - use of materials and decomposition (transition boards)
  - Multiplication - vertical/horizontal presentation, skip counting, using mental strategies such as identifying doubles, near doubles, multiplying by 5 and 10, using games to reinforce facts, developing and honing estimation skills
  - Division - concept of sharing, understanding division as repeated subtraction, developing and honing estimation skills
  - Addition and Subtraction of fractions will involve the use of improper fractions.
- Consistency in the use of methodologies throughout the school will be encouraged e.g. the use of similar methods of subtraction and long and short division.

### **Talk and discussion**

- Talk and discussion in mathematics will be regarded as an integral of the learning process. We will provide opportunities for pupils to explain how they got the answer to a problem,

discuss alternative ways of approaching a problem or give oral descriptions of group solutions?

- There is an agreed emphasis on the language of mathematics i.e. an agreed list of terminology, language for each class (**Appendix 1**)
- A conscious effort will be made to use the children's own ideas and environment as a basis for reinforcing mathematical language, *e.g. you are taller than he is, and teacher's table is longer/wider than yours.*
- Consistency in the use of language will be encouraged throughout the school. But care will be taken that children, during their schooling, are exposed to the different terms used in relation to the symbols e.g. +, add, plus ...
  - Addition – total, sum of, add, and ...
  - Subtraction – minus, subtraction, take-away, difference, less than ...
  - Multiplication – times, product of, multiply, groups of ...
  - Division – divide, share, split, groups of ...
  - Equals – same as, is, will be, answer is, means ...

### **Collaborative and co-operative learning**

- Children will be encouraged to work in pairs and groups during maths classes to enable peer learning to take place.
- A variety of organisational styles will be used, *e.g. pair work, group work and whole class work*

### **Problem-solving**

- Strategies such as Rude\* and ROSE\* are being implemented to support children's problem-solving strategies.
  - \*ROSE – Read, Organise, Solve, Evaluate
  - \*RUDE – Read, Underline, Draw, Estimate
- Further strategies will be researched in line with the School Numeracy Improvement Plan 2013/2014.

### **Using the Environment**

- The school environment will be used to encourage the development of mathematical awareness e.g. putting numbers on doors; marking heights on dado rails or cupboards which can be used for comparison; using large dice in PE to pick teams; set number of laps to run; using hula hoops for sorting children in the PE hall.
- Use of mathematical trails
- Opportunities to present/display their mathematical work in the class/corridor/school, will be provided.

### **Presentation of work**

- Children will be expected to present work neatly
- A variety of options for recording work will be accepted e.g. drawing a picture to show the result; using ICT, using concrete materials to demonstrate how the result was obtained; using a diagram and telling/explaining.

## **c. Assessment and record keeping** (In be read in line with School Assessment Policy)

In Scoil na Mainistreach mathematics will be assessed through

- Teacher observation
- Teacher-designed tests and tasks
- Questioning
- Diagnostic tests (mainly resource/learning-support) including:
- Standardised tests such as **Sigma-T**
- Portfolio assessment

- Self-Assessment
- Information gathered from assessment will be stored confidentially in the school in line with the school's policy on record keeping. Access to this information will be available to other teachers, parents and relevant professionals on request.
- Assessment will be viewed as a positive experience which helps teachers and children ascertain progress and identify the steps that need to be taken. Feedback on assessments will be given to children at the appropriate level and they will be given time for revision.

## **d. Children with different needs**

### **Children with learning, behavioural and Emotional Needs**

In line with the Special Needs Policy of Scoil na Mainistreach

- Children with special needs will be provided access to all strands of the mathematics curriculum.
- Teachers in mainstream classes may provide a differentiated programme to cater for children with learning difficulties.
- As far as resources allow, supplementary teaching will be available for children with learning difficulties in mathematics.
- The learning support classroom has been equipped with additional resources for the teaching of mathematics to children with special needs. These resources will be added to on an ongoing basis.
- Our LS Teachers are affiliated to the Irish Learning Support Association (ILSA) and special needs. These courses are funded by the BOM, as funds allow.
- All classrooms have been equipped with an Interactive Whiteboard and laptop as recommended by the DES. A set of laptops has been purchased by the school for teaching in all areas of the curriculum including mathematics. All laptops are linked to an internal server of student data and are timetabled to all teachers weekly including the LS/RT teachers.

### **Exceptionally Able Children**

In line with current recommendations from the NCCA; *Draft Guidelines for Exceptionally Able Students*:

[http://www.ncca.ie/en/Curriculum\\_and\\_Assessment/Inclusion/Special\\_Educational\\_Needs/](http://www.ncca.ie/en/Curriculum_and_Assessment/Inclusion/Special_Educational_Needs/)

further challenges may be provided for children of exception ability in the regular classroom through:

- Curriculum differentiation i.e. the provision of different learning activities for same-aged children who have different learning needs and preferences. The following approaches to differentiation may be used: *task, outcome, pace, support, resources, grouping, information, role, homework and dialogue/questioning*.
- Enrichment i.e groups of pupils working together or working in a different way from usual examples that may be used are. supported self-study, flow diagrams, surveys and organising and running events and self-assessment.
- Extension i.e. enabling the student to move through the curriculum at a faster rate than normal.
- Competitions i.e. entry into curricular and extra-curricular competitions.
- Acceleration i.e. moving the child towards more investigative and active forms of learning.
- Challenging the child's learning through use of the following strategies:
  - *Plan/Do/Review*
  - *Working from more difficult texts*
  - *Use a wider range of resources*

- *Recording in alternative ways i.e. mind mapping, plan, picture*
- *Role play*
- *Level of support i.e. allowing the child to work more independently*
- *Problem solving and enquiry tasks*
- *Information*
- *Decision making*
- *Open-ended tasks*
- The school will investigate the purchase of appropriate ICT software packages, as recommended by the NCTE at:  
[www.ncte.ie/SpecialNeedsICT/AdviceSheets/ExceptionallyAble/](http://www.ncte.ie/SpecialNeedsICT/AdviceSheets/ExceptionallyAble/)  
 Access to ICT may take place during class teaching time or on a 1-1 basis if assigned to the Learning Support Teacher under the GAM model, as resources allow.
- The school will consult with organisations such as *Irish Centre for Talented Youth CTYI* <http://www4.dcu.ie/ctyi/index.shtml> for appropriate information and resources, as necessary

### **e. Equality of Access**

As outlined in our Enrolment and Special Needs Policies, Scoil na Mainistreach promotes a policy of inclusion for children with special needs at all levels in the school and throughout the school curriculum. Both boys and girls access the maths curriculum equally.

## **Section 2 Organisational planning**

- ***Timetable***
- ***Homework***
- ***Resources and ICT***
- ***Staff development***

### **a. Timetable**

As recommended in the Curriculum Guidelines in Mathematic and in line with Circular 0056/2011 the teaching of mathematics will be formally timetabled as follows each week.

- Infants – 3 hours 25 minutes per week.
- 1<sup>st</sup> to 6<sup>th</sup> – 4 hours 10 minutes per week.

Maths can also be integrated with other subject areas in our school such as Geography, Science and P.E. to maximise the teaching programme.

### **b. Homework**

To be read in line with the School Homework Policy maths homework will be assigned as follows:

- A combination of written oral and tables
- Maths homework will be set to consolidate class work.
- A differentiated approach to homework will be adopted for children with special needs and those of exceptional ability.

### **c. Resources and ICT**

#### **Maths Programmes**

It is our policy to use manipulatives as far as possible when teaching maths. Resources are stored in each classroom. The following are the two main programmes used in the school.

- a. *Planet Maths (Folens) Junior Infants to 6th*
- b. *New wave Mental Maths Programme (1<sup>st</sup> to 6<sup>th</sup>)*

## ICT

All classrooms have been equipped with an Interactive Whiteboard and laptop as recommended by the DoES. A set of laptops has been purchased by the school for teaching in all areas of the curriculum including mathematics. All laptops are linked to an internal server of student data and are timetabled to all teachers weekly including the LS/RT teachers. In recent years the school has moved toward using free online websites for the teaching of mathematics. The ICT co-ordinator Ms. O'Donovan has furnished the school with appropriate websites for the teaching of maths and other subject areas is available to teachers on [www.onlytwoclicks.com](http://www.onlytwoclicks.com). There are also links to maths websites in the Kids' Corner Section of the school website [www.scoilnamainistreach.net](http://www.scoilnamainistreach.net). Teachers regularly use Folens online maths activities as part of their class programmes.

### d. Staff development

Teachers are encouraged to regularly attend courses and share the skills acquired at these courses. Displays of current resources available for the teaching of mathematics will be promoted in the school. Staff meetings will be structured to allow for a sharing of ideas and current research on a regular basis.

## Section 3 Implementation and Communication

- **Parental Involvement – Home School Links**
- **Implementation, Timeframe and Review**
- **Success Criteria**

### a. Parental involvement – home school links

It is important to keep parents advised of methodologies. In Scoil na Mainistreach An open day is held with parent of newly enrolled children providing them with suggestions as to how to assist their children in the area of maths at home.

Further advice is provided on an on-going basis through

- Parent/Teacher meetings - both formal and informal
- School Journal
- *Helping Your Young Child with Maths*- Parent tip sheets provided by the NCCA
- School Policy is uploaded to the school website [www.scoilnamainistreach.net](http://www.scoilnamainistreach.net)
- Useful links to relevant websites in relations to mathematics are published in the school newsletter as available.

For more information see the [www.NCCA.ie](http://www.NCCA.ie) for video links for parents in relation to the teaching of mathematics.

### b. Success criteria

The following will be indicators that the plan has been implemented.

- Teachers' preparation based on this plan.
- Procedures outlined in this plan consistently followed.
- Feedback from teachers/parents/pupils/community.
- Inspectors' suggestions/report.
- Feedback from second level schools.

### c. Implementation and review

This reviewed policy will be implemented from date of ratification. This policy will be reviewed annually as part of the school self-evaluation process. A formal review of this policy will take place in the 2016/17 school year.

**Approval / Ratification of the Maths Policy**

*This policy was reviewed and ratified by the Board of Management of Scoil na Mainistreach on Wednesday 5<sup>th</sup> December 2012.*

**Chairperson:** \_\_\_\_\_ **Date:** \_\_\_\_\_

This policy will be uploaded to [www.scoilnamainistreachquin.net](http://www.scoilnamainistreachquin.net)



## ***Scoil na Mainistreach, Quin.***

### ***Appendix 2- Consistent Maths Language .***

Mathematics is a language with its own vocabulary and grammar. The school staff determined that it was important to encourage a consistent, accurate and effective use of the language throughout the school to prevent confusion among pupils, teachers and parents.

The following is our agreed terminology.

#### **1. Subtraction:**

- a. Infant to second classes – Symbol (-) will normally be introduced in First class but may be introduced beforehand depending on student/class level of ability.

Symbol (-), *take away, less than and left.*

- b. From second class to sixth classes children will become familiar with :  
*Symbol (-), subtraction, decrease, subtract, take away, from, less than, minus and difference.*

#### **2. Addition:**

- a. The symbols (+) and (=) are normally introduced in Senior Infants. Prior to this the Junior Infants will be introduced to terms such as  
For (+) *plus, add, altogether and more.*  
For (=) *the same as and is.*

- b. From First to sixth class the children will become familiar with the following:  
(+) *addition, total sum of, increase, more than.*  
(=) *the same as and is.*

#### **3. Tables**

Number facts up to ten will be memorised. Addition facts will be memorised by the end of Second Class and multiplication facts by the end of Fourth Class. Both will be revised up to the end of Sixth Class.

A variety of methods will be used including counting in 2s, 3s, 4s ... including reciting, using tapes, game playing such as shoot out, kings and queens and buzz etc. Subtraction and division tables will be learnt as the inverse of addition and multiplication.

(÷) and (x) are introduced as symbols at the end of Second/beginning of Third Class. The following vocabulary will be used:

- (÷) *Division, divide, divided by, split, share, shared between, group, how many in. The term repeated subtraction will also be used.*
- (x) *Multiplication, multiply times of.*
- *The term repeated addition will also be used.*
- In Sixth Class the terms *product and quotient* will be used.

When studying the excel programme in ICT classes at senior level the symbols \* and / may be introduced. Charts were purchased for each classroom identifying the symbols

for these four operations and the vocabulary associated with these symbols. All staff members are encouraged to display these charts on an ongoing basis.

**4. Zero.**

*The term Nought will be referred to most commonly as zero.*

**5. Place Value**

*In place value the word units will be added instead of ones*

**6. Written Methods – Common Methodology**

To ensure a common approach to the teaching of subtraction and fractions the teaching team of Scoil na Mainistreach has agreed the following:

**a. Subtraction and regrouping**

We will subtract from bottom up.

e.g. 
$$\begin{array}{r} 24 \\ - 19 \\ \hline \end{array}$$

Recommended Method for Scoil na Mainistreach for above example.

- **4 take 9 I cannot do**
- **I now regroup my tens.**
- **I now have one ten and fourteen units.**
- **14 units take 9 units is 5 units. Now go to my tens take 1 ten from 1 ten is zero.**
- **My answer is 5 units and zero tens.**

**b. Fractions:**

Agreed Methodology:

***In the addition and subtraction of mixed numbers the whole numbers are worked on first, then the equivalence is used for the fractions part by finding the common denominator.***

***In the multiplication and division improper fractions are used eg.  $3\frac{1}{2}$  is determined as  $\frac{7}{2}$ .***

**7. Use of Manipulatives.**

Children will be allowed the opportunity to verbalise and to use manipulatives to represent each of these activities before the written recording of symbols.