



# Whole School Maths Plan in Glynn NS

## Introductory Statement and Rationale

- This particular document was compiled in the summer term 2016, drawing on other documents and policies in Glynn NS in use over the past number of years. It attempts to draw the information together in a cohesive, comprehensive and concise document. The policy was initially drafted by J. Ryan, feedback was received from individual teachers and discussed with them. The draft plan was discussed at a staff meeting on 3<sup>rd</sup> October 2016. Decisions were made at a staff meeting on 16<sup>th</sup> January 2017. The plan was discussed and ratified by the Board of Management on 30<sup>th</sup> January 2017.
- This document draws on Maths Curriculum and Teacher Guidelines of the Primary School Curriculum (1999) and is in response to the school's needs and current legislation (DES).
- This plan is a record of decisions in relation to Maths in line with the Revised Primary Curriculum. It is intended to guide teachers in their individual planning for Maths and to benefit teaching and learning in the school in the area of Mathematics.
- To review existing plans in light of changed emphases and new methodologies (PDST and inspector input Ms Mary O'Regan).

## Vision

- Our school fosters the physical, social, academic and spiritual development of our children. We cherish the self-esteem and individuality of each child emphasising their many and varying gifts (ref. online school website).
- This plan will focus on meeting the needs of the children in Glynn N.S. in the area of Maths. We hope that they will:
  - 1 Be confident in the use of Maths vocabulary and terminology.
  - 2 Understand number operations.
  - 3 Be familiar with the use of appropriate equipment to perform practical tasks.
  - 4 Be able to relate maths to the environment and every-day use.
  - 5 Apply mathematical skills to problem solving.

## Aims

We endorse the aims and objectives of the revised curriculum.

- 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 a child to use mathematical language effectively and accurately.
- To enable a 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.



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## Content of the Plan

### Curriculum Planning:

The strands are:

1. Number
2. Algebra
3. Shape and Space
4. Measures
5. Data
6. Early Mathematical Activities

Each class follows the *Planet Maths* Programme for their class level in conjunction with the *New Wave Mental Maths* (2<sup>nd</sup> class – 6<sup>th</sup> class). Teachers use other resources to supplement the basic textbook e.g. Mathemagic, Figure It Out

Number is deemed to be important. We recognise a balanced approach in implementing all strands of the curriculum.

The **Curriculum objectives** are used as the objectives for each class level in our school.

Junior & Senior Infants	Page 20-35 Curriculum
1 <sup>st</sup> & 2 <sup>nd</sup> Class	Page 40-59 Curriculum
3 <sup>rd</sup> & 4 <sup>th</sup> Class	Page 64-83 Curriculum
5 <sup>th</sup> & 6 <sup>th</sup> Class	Page 88-111 Curriculum

At the start of each year teachers will familiarise themselves with the objectives for their class and plan for the year to incorporate all strands of the Maths Curriculum.

A breakdown of these objectives for each class, together with the relevant page from the curriculum and resources is available in Appendix 1 to this plan.



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## Approaches and Methodologies

The following approaches and methodologies will be used throughout the year:

- **The use of Concrete Materials:** Children will have access to and use a broad range of mathematical equipment during lessons. There are resource boxes available to each class in the art room. An audit is carried out each year by the principal or delegated person to ensure the boxes are fully stocked and that equipment is available in class rooms. (See resources section of this plan)
- **Talk and Discussion:** Talk and discussion is seen as an integral part of the learning process and opportunities should be provided during the Maths class for children to discuss problems with the teacher, other individual children and in groups.
- **Active Learning/Guided Discovery:** As part of the Maths programme for each class, children are provided with structured opportunities to engage in exploratory activities under the guidance of the teacher to construct meaning, to develop mathematical strategies for solving problems and to develop self-motivation in mathematical activities. These activities should be outlined in the teachers' long and short term planning. In response to the WSE in 2012, co-operative learning is a feature of the Maths lesson where deemed appropriate by the teacher.
- **Using the environment/community as a learning resource:** The school building is used as a resource to support the Maths programme. Numbers have been put on doors. Each class will have the following resources where applicable depending on the level ...
  - ✓ an analogue clock
  - ✓ a digital clock
  - ✓ metre stick
  - ✓ calendars
  - ✓ a height chart
  - ✓ number lines
  - ✓ hundred squares
  - ✓ fraction equivalence charts
  - ✓ money equivalence charts
  - ✓ decimal/percentage/fraction conversion charts, etc. as applicable.

*An audit will be carried out in September of each year to ensure that classrooms are properly stocked.*

Measurements will be marked in classrooms and there will be markings of shapes and numbers on the yard. Teachers will identify aspects of the environment that could act as a setting for mathematical trails, problem solving, measurement and shape and space activities. They will draw from the following sources

- ❖ Classroom
- ❖ General school building
- ❖ School grounds
- ❖ Local area
- ❖ The home

Measurement was the area of Numeracy concentrated on in the S.I.P. in recent years. See attached S.I.P. which is available on the school website under School Self-Evaluation.



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## Number limits for each Class

<i>Class</i>	<i>Numerals</i>
Junior Infants	0 – 5
Senior Infants	6 – 10
1 <sup>st</sup>	to 99
2 <sup>nd</sup>	to 199
3 <sup>rd</sup>	to 999
4 <sup>th</sup>	to 9999
5 <sup>th</sup>	Up to 100000
6 <sup>th</sup>	Up to millions

## Data

- ❖ Children are encouraged to collect real data i.e. infant classes collect personal information, favourite fruits, favourite toys etc. and represent it on a pictogram for example.
- ❖ Older children will create and interpret bar charts, trend graphs and pie charts.
- ❖ Children in senior classes will create database to show how information technology can be used to interpret large amounts of information.
- ❖ The use of Excel and other IT packages will be encouraged. As part of these activities children will be aware of the importance of entering relevant data and asking clear questions to extract the required information from the data.

## Language - Concept/Skills

There is a strong link between language and concept acquisition. We feel it is important to have a common approach to the terms used and the correct use of symbol names. Our school has the following vocabulary

### *Addition and Equivalence*

+ and = are introduced as symbols in <b>Senior Infants</b> . Prior to this the vocabulary used to talk about operations will be:	
+	plus', 'and', 'add', 'more', 'altogether'
=	'the same as', 'is'
<b>From First Class</b> , children will become familiar with the following:	
+	'addition', 'total', 'sum of', 'increase', 'more than'
=	'equals', 'represents' " is the same as"



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## *Subtraction*

- is introduced as a symbol in <b>First Class</b>
In the <b>Infant</b> classes the vocabulary used will be: 'take away', 'less than', 'left', 'from'
From <b>First Class</b> , children will become familiar with 'subtraction', 'decrease', 'subtract', 'take away', 'from', 'less than', 'minus', 'difference', 'less than by', 'more than by'. There will be a variety of language used.

## *Multiplication and Division:*

÷ and x are introduced as symbols in <b>Third Class</b> . The following vocabulary will be used:
'division', 'divide', 'divided by', 'split', 'share', 'shared between', 'group', 'how many.....in...'
X 'multiplication', 'multiply', 'times of'
In <b>Fifth and Sixth classes</b> the words 'product' and 'quotient' will be used.

## **Place Value**

In place value, the words 'units', 'ones', "tens" & "hundreds" will be used.

Tenths are introduced in Third Class

Tenths are introduced in FourthClass

Tenths are introduced in SixthClass

## **Written Methods**

To ensure a common approach to the teaching of subtraction and fractions, we have agreed the following:

### *Subtraction:*

Vertical:	Start from the bottom using the word 'from', start from the top using "take away"
Horizontal:	Start from the left using the words 'take away'
Renaming/regrouping will be the method used in every class.	



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## Fractions:

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

$$5\frac{1}{4} + 3\frac{1}{2} = 8$$

In multiplication and division, improper fractions are used

$$3\frac{1}{2} \times 2 = 7/2 \times 2/1$$

Children are afforded opportunities to verbalise and to use manipulatives to represent each of these activities before the written recording of symbols.

## Tables

Number facts up to 12 will be memorised

Addition and subtraction facts will be memorised from First Class.

Multiplication and division facts will be memorised from Third class

All will be revised up to Sixth

Class and minute table tests will be given at the end of each term.

A variety of methods will be used including counting in 2's, 3's, 4's...reciting, using music tapes etc.

Subtraction and division will be learnt as the inverse of addition and multiplication.

All classes will be given a tables test at the end of each term and a record will be kept. A tracker for the results will be put into in to the children's homework folders.

## Problem Solving

Children are encouraged to use their own ideas as a context for problem solving. Worksheets based on childrens' ideas may be used for some problem solving activities. Teachers should leave a copy of each of these worksheets in the Maths Resource file for future reference.

With regard to problem - solving, children will be taught to apply the following strategies:

<i>Understanding the problem</i>	<i>Solving the problem</i>	<i>Additional Help</i>	<i>Answering the problem</i>
Read the problem	Look for a pattern	Construct a model	Use all the important information
Read it again	Guess and check	Draw a picture	Check your work
Say, in your own words what you are trying to find out.	Write an equation	Make an organised list or table	Decide if the answer makes sense
Find the important in formation	Break the problem down and solve	Use objects to act out the problem	Write the answer in a complete sentence



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	each part		
Look for key phrases		Use easier numbers	
Write what you know		Work backwards	

“Does your answer make sense?”

### Estimation

Estimation will regularly form part of maths lessons. Children will be encouraged to use each of the following strategies selecting the most appropriate for the task in hand:

- Front end
- Clustering
- Rounding
- Special numbers

These strategies are explained on pages 32 - 34 of the Teacher Guidelines for Mathematics.

Estimation uses information to come to a reasonable answer.

### Skills

The following skills will be acquired by the children through the study of the various strands in the Curriculum. (pages 68 – 69 of Teacher Guidelines )

- Applying and problem solving.
- Communicating and Expressing.
- Integrating and Connecting.
- Reasoning.
- Implementing.
- Understanding and Recalling.
- Estimation.

Every strand studied must provide opportunities for acquiring these skills. Opportunities should also be provided for the transfer of these skills to other areas e.g. Science, Geography, P.E., Art, History and Music.



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## Assessment

(Refer to school's Assessment and Record Keeping Policies and the Curriculum pp 60-67)

Assessment is used by teachers to inform their planning, selection and management of learning activities so that they can make the best possible provision for meeting the varied mathematical needs of the children in our school. It is done formally and informally during the child's school years.

### Approaches to Assessment:

- ❖ Teacher observation / Error analysis / interview method
- ❖ One Minute Tables Test termly
- ❖ Weekly Mental Maths Test
- ❖ Teacher designed tests and tasks. (Added to the standardised testing, these observations and assessments form an important part in assessing needs)
- ❖ Homework / Parental feedback
- ❖ Work samples.
- ❖ Children encouraged to assess their own work on a continuous basis.
- ❖ Standardised Testing: Sigma T tests are administered in May each year to all children first to sixth. The results of these tests are compiled on the SCORZ system (CJ Fallon) and are used to identify priority areas.
- ❖ Templates for Teacher lead assessment and pupil lead assessment are in Appendix 5 and may be developed during the life-time of this plan.
- ❖ Teachers will use the termly Planet Maths Assessment Test and keep appropriate records. These tests will be sent home for the parents to sign.

## Record Keeping

- ❖ Teachers keep their own records (assessment tests, etc.) In addition, records of all standardised tests are kept in class files in the school office until the student is 21 years of age. Records of tests, etc. are kept on spread sheets on the hard drive in the office also.
- ❖ All teachers have access to these records and a class file is given to each teacher at the beginning of each year with all relevant results. Where possible a meeting is facilitated between the class teacher and the teacher who will teach the class the following year.
- ❖ Parents are informed of their children's standardised test results at parent teacher meetings and in end of the year reports.

## Differentiation

- We recognize all children are different. We recognise children of different abilities and accommodate their needs. Additional work is given to children who need to be challenged and extra time is given to children who need extra support. Children with special needs have access to support having followed procedures of assessment.
- Our SNAs support particular children as directed by class teacher.
- Please see Appendix 3 for suggested Differentiation practices already in use in the school. These may be developed according to practice and new methodologies.





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## Collaborative Learning

- Maths gives an opportunity for collaborative learning. Each year, as part of Maths week, there are shared activities between different classes.
- Teachers also use collaborative learning in their class work.
- Suggestions for collaborative learning are available in Appendix 4. These may be added to in the time-frame of this plan.

## Equality of Participation and Access:

All children are provided with equal access to all aspects of the Maths curriculum. Boys and girls are provided with equal opportunities to engage in Mathematical activities.

**Children with Different Needs** – refer to Glynn NS Special Needs Policy

### Children with learning disabilities

- Specific difficulties that students with special needs display in Glynn NS include, speech and language disorders, behavioural difficulties, hearing, sight, ASD, dyslexia, dyspraxia and mild and moderate learning disabilities.
- Inclusion is embedded in Glynn NS's policies and there is a commitment from all staff to the implementation of this with regard to limited resources and varying abilities of the children involved.
- The curriculum is adapted as practicable and expectations are kept in line with the students' abilities as relevant. This may involve pre-teaching and differentiated work.
- The child may have access to a Special Needs Assistant who works under the class teacher's direction to give extra help, follow complementary or child specific programmes.
- Likewise the child may get extra tuition on a one-to-one or small group basis with a learning support or resource teacher
- The resource teacher/learning support teacher, class teacher, Special Needs Assistant (where applicable) and the child's parents and sometimes the child themselves collaborate in devising an Individual Education Plan where required.
- Children with special educational needs have access to IT for word processing and educational material including Tables Challenge, Quiz Pa Maths and access to educational material on the internet.
- Soundfield system has been installed in all classes particularly for the benefit of pupils with auditory difficulties

### Children with exceptional ability:

- Children with exceptional ability may be given differentiated work in line with their abilities.
- These children may be directed to work on computers using packages such as word processors, PowerPoint, Scratch etc.

These students may be directed to the Centre for Talented Youth.



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## Timetable

From January 2012 under the, The National Strategy to improve Numeracy, teachers in planning will dedicate a minimum of 41 minutes a day to maths in the Infant Classes and at least 50 minutes a day on maths from 1<sup>st</sup> to 6<sup>th</sup> class

* Infant Classes	-	3 hours 25 mins
* 1 <sup>st</sup> – 6 <sup>th</sup>	-	4 hours 10 mins

## Homework

Homework should be in line with the school's homework policy and the approaches as set out in the curriculum for Maths

- Maths homework is given as decided by the class teacher.
- Tables may also be given as homework but the process of learning tables should begin in the class room.
- Children with special needs may be given differentiated homework for Maths.
- The learning support/resource teachers and the class teacher may coordinate with regard to setting and correcting homework where necessary.

## Resources and ICT

The school is well supplied with IT, interactive white boards, laptops and broadband connection is good. IT is the responsibility of Mr J Ryan.

A full list of resources is available in Appendix 2. These may be updated by teachers as appropriate.

## Individual Teachers' Planning and Reporting

Teachers should base their yearly and short term plans on the approaches set out in this whole school plan for Maths. Work covered will be outlined in the Cuntas Miosúil, which will be submitted to the principal.

## Staff Development

- Teachers are made aware of any opportunities for further professional development through participation in courses available in the local Education Centre and online.
- Skills and expertise within the school are shared and developed through inputs at staff meetings.
- Teachers may relay information/advice to other teachers in an informal manner or at staff meetings. In addition resources may be saved on the external hard drive or hard copies in staff room as suitable
- There is an open approach to group and team-teaching of Maths and teachers are open to sharing resources and reviewing current practices and new developments co-operatively and individually sharing knowledge and insight into good practices.
- The school inspectorate and school psychological service assist in staff development also.



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## Parental Involvement

- ❖ Parents are encouraged to support the school's programme for Maths.
- ❖ Individual parent/teacher meetings are held annually in November.
- ❖ Teachers and parents are afforded this chance to discuss each individual child's progress in Maths and other areas, and ways of assisting this progress.
- ❖ Parents and teachers are welcome to make individual arrangements to discuss matters of relevance at other times throughout the school year.
- ❖ Tables Challenge is linked from the school website

## Success Criteria

The success of this plan will be measured using the following criteria:

- Implementation of revisions in the Maths curriculum will be evident in teachers work.
- Continuity of content and methodology will be evident in teachers preparation and monthly reports.
- On-going assessment, formal and informal, will show that pupils are acquiring an understanding of mathematical concepts and proficiency in maths skills appropriate to their age and ability.

## Implementation

Roles and Responsibilities – The principal teacher has overall responsibility for co-ordinating and progressing the implementation of this plan. He will encourage and accept feedback and recommendations on its implementation from all concerned parties and report on findings.

Class teachers are responsible for the implementation of the Maths programme and are responsible for distribution and monitoring of resources.

## Ratification and Communication

This policy was discussed at a staff meeting in October 2016 and again in January 2017. It was ratified by the BOM at their following meeting. The plan will be communicated on the school website to parents and community. In addition the plan will be available on the school hard drive under school plans and a paper copy will be kept in a folder in the staff room.

This plan is for immediate implementation in February 2017 following ratification by BOM

## Review of Plan

This plan will be reviewed during the summer term 2018 or at any time it is deemed necessary and will be based on results of assessments across all classes and on teachers' views as to the effectiveness of the plan.

Signed Patrick Stafford 11

Date 30<sup>th</sup> JAN. 2017

Rev. P. Stafford PP

(Chairperson BoM)

