



gretb

Bord Oideachais agus Oiliúna
na Gaillimhe agus Ros Comáin
Galway and Roscommon
Education and Training Board

Cuan na Gaillimhe CNS - a Steiner education



An Cimín Mór, Cappagh Road Knocknacarra, Galway, H91Y38E

Roll No: 20462d Tel: (091) 867 387

www.cuannagaillimhecns.ie

Mathematics Primary School Curriculum Policy for Infants to 6th Class

CONTENTS

This plan will be addressed under the following headings:

1	Introductory Statement and Rationale	2
2	Vision & Aims	2
3	Curricular Planning.....	4
3.1	Strand and Strand Units.....	4
3.2	Skills	5
4	Approaches and methodologies	7
5	Assessment and record keeping	13
6	Children with differing needs.....	14
7	Equality of participation and access.....	15
8	Organisational Planning	15
8.1	Timetable.....	15
8.2	Homework.....	16
8.3	Resources and ICT.....	16
8.4	Individual teacher's planning and reporting.....	16
8.5	Staff development	17
8.6	Parental involvement.....	17
8.7	Community links	17
9	Success Criteria	18
10	Implementation and Review	18
11	Ratification and Communication	18
12	Appendix 1: Maths Language across the Strands.....	19
13	Appendix 2: Numeral formation.....	20

1 INTRODUCTORY STATEMENT AND RATIONALE

1.1 INTRODUCTORY STATEMENT

Cuan na Gaillimhe Community National School is a multi-denominational, co-educational primary school. Cuan na Gaillimhe is a developing school. At the time of writing we cater for children up to and including 3rd class and by September 2022 we will cater for children up to 6th class. Our Mathematics Policy was drawn up in collaboration with staff members during the 2020 school closures. It is intended that the plan will provide a framework that promotes teaching and learning of Mathematics throughout the school as it grows.

1.2 RATIONALE

This plan is a record of whole school decisions regarding teaching and learning in relation to Mathematics which is in line with the Primary Curriculum, 1999. It is intended to:

- Enhance teaching and learning in our school.
- Outline the philosophy of the school regarding Mathematics.
- Put in place a structured approach regarding content, methodologies and language for the teaching of mathematics in our school, in line with the Primary School Curriculum 1999. Ensure continuity of teaching methodologies throughout the school.
- Outline details on planning, resources and assessment.
- Inform new or temporary teachers of the approaches used in our school.

2 VISION & AIMS

2.1 VISION

This plan recognises and endeavours to adopt the values that are set out in the ethos of the school. Our school cherishes all children and aims:

- To enable children to achieve their full potential in Mathematics according to their ability.
- To foster inclusivity by using differentiation of approach and expectation.
- To contextualise the learning of mathematics, through extensive use of concrete materials and the children's local environment.
- To foster in them love for Maths by conveying maths as fun and enjoyable.
- To make the various strands of the Mathematics curriculum applicable to each child's stage of development in as far as is practical within the classroom setting and through various support structures including team-teaching, small group and individual withdrawal where necessary.

2.2 AIMS

In light of this vision, our aims in mathematics (in accordance with the aims for mathematics in the Primary School Curriculum pp. 12-14) are as follows;

- To provide all children with the opportunity to access the full range (all strands and skills) of the Mathematics curriculum
- To encourage a positive attitude towards mathematics and an appreciation of both its practical and its aesthetic aspects, enabling the child and parents to see that mathematics is fun and can be enjoyed.
- 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 develop the ability to think clearly and logically
- To develop problem-solving abilities and a facility for the application of mathematics to everyday life
- To provide pupils with a supportive atmosphere in which to develop their mathematical skills
- To allow all children the opportunity to succeed according to their individual ability.
- To increase the standard of mathematics in the school.
- To integrate mathematics into other curriculum areas.
- To ensure there is much emphasis on active learning strategies, including extensive use of concrete materials in all classes, along with using the school building and environment.
- To inform mathematics teaching by on-going Assessment for Learning.

3 CURRICULAR PLANNING

3.1 STRAND AND STRAND UNITS

Year bands	Jun & Sen Infants	1 st & 2 nd classes	3 rd & 4 th classes	5 th & 6 th classes
Strands	Strand Units			
Early mathematical activities	<ul style="list-style-type: none"> • Classifying • Matching • Comparing • Ordering 			
Number	<ul style="list-style-type: none"> • Counting • Comparing and ordering • Analysis of number <i>Combining</i> <i>Partitioning</i> <i>Numeration</i> 	<ul style="list-style-type: none"> • Counting and numeration • Comparing and ordering • Place value • Operations <i>Addition</i> <i>Subtraction</i> • Fractions 	<ul style="list-style-type: none"> • Place value • Operations <i>Addition</i> <i>Subtraction</i> <i>Multiplication</i> <i>Division</i> • Fractions • Decimals 	<ul style="list-style-type: none"> • Place value • Operations • Fractions • Decimals • Percentages • Number theory
Algebra	<ul style="list-style-type: none"> • Extending patterns 	<ul style="list-style-type: none"> • Extending and using patterns 	<ul style="list-style-type: none"> • Number patterns and sequences • Number sentences 	<ul style="list-style-type: none"> • Directed numbers • Rules and properties • Variables • Equations
Shape and space	<ul style="list-style-type: none"> • 3-D shapes • 2-D shapes • Spatial awareness 	<ul style="list-style-type: none"> • 2-D shapes • 3-D shapes • Spatial awareness • Symmetry • Angles 	<ul style="list-style-type: none"> • 2-D Shapes • 3-D shapes • Symmetry • Lines and angles 	<ul style="list-style-type: none"> • 2-D Shapes • 3-D shapes • Symmetry • Lines and angles
Measures	<ul style="list-style-type: none"> • Length • Weight • Capacity • Time • Money 	<ul style="list-style-type: none"> • Length • Area • Weight • Capacity • Time • Money 	<ul style="list-style-type: none"> • Length • Area • Weight • Capacity • Time • Money 	<ul style="list-style-type: none"> • Length • Area • Weight • Capacity • Time • Money
Data	<ul style="list-style-type: none"> • Recognising and interpreting data 	<ul style="list-style-type: none"> • Recognising and interpreting data 	<ul style="list-style-type: none"> • Recognising and interpreting data • Chance 	<ul style="list-style-type: none"> • Recognising and interpreting data • Chance

- Each class teacher familiarises themselves with the curriculum objectives for their own class level from the Teacher Guidelines.
- Each SEN teacher familiarises themselves with the curriculum objectives for the class level they are teaching.

3.2 SKILLS

Teachers make sure that mathematical skills are being actively developed through the content and applied to other subject areas (See Teacher Guidelines: Mathematics pp. 68-69)

Year bands	Jun & Sen Infants	1 st & 2 nd classes Infants plus	3 rd & 4 th classes 1 st & 2 nd classes plus	5 th & 6 th classes 3 rd & 4 th classes plus
Applying & problem solving e.g. selecting appropriate materials and processes in science	<ul style="list-style-type: none"> • Select appropriate materials and processes for mathematical tasks • Select and apply appropriate strategies to complete tasks or solve problems • Recognize solutions to problems 	<ul style="list-style-type: none"> • Apply concepts and processes in a variety of contexts 	<ul style="list-style-type: none"> • Analyse problems and plan an approach to solving them • Evaluate solutions to problems 	<ul style="list-style-type: none"> • Reflect upon & evaluate solutions to problems
Communicating & expressing e.g. discussing and explaining the processes used to map an area in geography	<ul style="list-style-type: none"> • Discuss and explain mathematical activities • Record the results of mathematical activities using diagrams, pictures & numbers • Discuss problems presented pictorially or orally 	<ul style="list-style-type: none"> • Listen to and discuss other children's mathematical descriptions and explanations • Discuss & record using diagrams, pictures & symbols 	<ul style="list-style-type: none"> • Discuss and explain the processes used or results of mathematical problems or projects • Discuss & record using a variety of methods • Discuss problems presented diagrammatically; carry out analysis 	<ul style="list-style-type: none"> • Discuss and explain processes and results in an organized way • Discuss problems and carry out analyses
Integrating & connecting e.g. recognising mathematics in the environment	<ul style="list-style-type: none"> • Connect informally acquired mathematical ideas with formal mathematical ideas • Recognise mathematics in the environment • Recognise the relationship between verbal, concrete, pictorial and symbolic modes of representing numbers • Carry out mathematical activities that involve other areas of the curriculum 	<ul style="list-style-type: none"> • Understand the mathematical ideas behind the procedures he/she uses 	<ul style="list-style-type: none"> • Connect with formal mathematical processes • Understand the connection between mathematical procedures and concepts • Represent mathematical ideas and processes in different modes (pictorial, verbal, diagrammatic, symbolic) • Recognise and apply mathematical ideas and processes in other areas of the curriculum 	

Year bands	Jun & Sen Infants	1 st & 2 nd classes Infants plus	3 rd & 4 th classes 1 st & 2 nd classes plus	5 th & 6 th classes 3 rd & 4 th classes plus
Reasoning e.g. exploring and investigating patterns and relationships in music	<ul style="list-style-type: none"> • Classify objects into logical categories • Recognise and create sensory patterns • Justify the processes and results of mathematical activities 	<ul style="list-style-type: none"> • Make guesses and carry out experiments to test them • Recognise and create mathematical patterns and relationships 	<ul style="list-style-type: none"> • Make hypotheses and carry out experiments to test them • Make informal deductions involving a small number of steps • Explore and investigate mathematical patterns and relationships • Reason systematically in a mathematical context 	<ul style="list-style-type: none"> • Search for and investigate mathematical patterns and relationship
Implementing e.g. using mathematics as an everyday life skill	<ul style="list-style-type: none"> • Devise and use mental strategies/procedures for carrying out mathematical tasks • Use appropriate manipulatives to carry out tasks and procedures 	<ul style="list-style-type: none"> • Execute standard procedures efficiently 	<ul style="list-style-type: none"> • Execute standard procedures efficiently with a variety of tools 	
Understanding & recalling	<ul style="list-style-type: none"> • Understand and recall terminology 	<ul style="list-style-type: none"> • Understand and recall terminology and facts 	<ul style="list-style-type: none"> • Understand and recall terminology, facts and definitions 	<ul style="list-style-type: none"> • Understand and recall terminology, facts, definitions & formulae

4 APPROACHES AND METHODOLOGIES

4.1 GENERAL APPROACHES TO MATHEMATICS

All children should be provided with the opportunity to access the full range i.e. all strands, of the mathematics curriculum. In our school we ensure this happens as follows:

- The **content** to be taught to each class shall follow that of the Revised Mathematics Curriculum.
- Maths work will be **differentiated** by the class teacher and learning support teacher in a variety of ways e.g. groupings based on ability, differentiated teacher-designed worksheets, differentiated oral maths questions, simplification of maths language for children with literacy difficulties, etc.
- There is more emphasis on teaching the curriculum through **active learning strategies** and less emphasis and reliance on textbooks and workbooks.
- There is a hands-on approach to encourage children to explore, manipulate and understand Mathematical concepts, using broad, creative and varied **concrete materials/everyday objects**.
- Pupils should experience working alone, in pairs and in small groups.
- To facilitate **varied learning styles** it is important that concepts/tasks are presented and explored in a variety of ways using pupils' own experience and environment as much as possible.
- **Recording** is done verbally, pictorially and in written form on whiteboards, worksheets and copybooks.
- Teachers ensure that the relevant mathematical **language** is implemented appropriately and in context formally through Maths instruction and informally across the curriculum e.g. Aistear
- Children are exposed to a Maths rich **environment** both within the classroom and in the wider school environment
- All teachers **integrate** mathematical skills across all areas of the curriculum where appropriate and useful eg numeracy activities in Play, time in SESE, gathering data in SESE, Shape and Space with PE and Visual Arts, measuring temperatures in Science, sorting and classifying in oral language and Science.
- Opportunities for **linkage** are used where appropriate eg teaching of decimals and money (TG pp. 52 & 56).
- We endeavour to ensure that:
 - the number limits are being adhered to, particularly at first and second classes where the emphasis is on the development of the concept of place value, e.g. more work within the hundred square without going past 100. For further information, refer to TG p. 70. Occasionally, the parameters may vary, depending on individual children.
 - all efforts are made that the children would 'discover' formulae rather than being taught by rote, e.g. length by breadth. It is, however, recognised that rote learning may occasionally be required to support this.

We endeavour to raise the profile of mathematics as **a subject to be enjoyed** by all children by using the environment and making mathematics a practical, child-centred subject e.g. Mystery Maths time, display of mathematics work in school, celebrating Maths Week annually, maths party bags for use for homework, maths trails. active maths (board games/cards/ICT).

Maths displays will be created in classrooms and around the school for 1st class onwards.

4.2 SPECIFIC APPROACHES TO MATHEMATICS

4.2.1 AGREED METHODOLOGIES FOR TEACHING OF MATHEMATICAL SKILLS

Addition

- Top to bottom strategy for addition
- We introduce the addition of 3 addends horizontally but this must lead to vertical addition
- Addition with regrouping (demonstrate first using concrete materials then move onto written sum)
 - We introduce addition with regrouping using base 10 materials
 - e.g. $8+5+13$: Thirteen units is the same as one ten and three units, Then use notation board and bundles of 10
 - e.g. $28+15=43$: Eight and five make thirteen, that's the same as one ten and three units; ten cannot stay on the unit side and must go next door to the tens. How many tens and units are there?

Subtraction

- Introduce subtraction with regrouping with physical materials e.g. $33-9$. '3 take away 9 you cannot do, open the bag of beans. Now we have 13 single beans. $13-9$ we CAN do. We have 4 beans and 2 bags and that makes 24'
- Then move onto the notation board with base ten materials. Firstly explain that the sum is just to remind us what we are taking away; 3 take away 9 I cannot do. Take a ten and exchange it for 10 units. Keep the units on the units side. Now I have 2 tens and 13 units. 13 take away 9 I can do, I have 4 left. Now I will move my answer to the bottom.

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 (3rd-6th class).

Fractions

- We add and subtract fractions using the Lowest Common Denominator strategy (L.C.D.) (4th-6th class).

Time

- Addition and subtraction of Time: Hours and minutes will be renamed. A substantial amount of preparatory work will be conducted by teachers.

Decimals

- The decimal point: The decimal point will always go mid way and not at the bottom. For example, the number "three point four" will be written as "3·4" rather than "3.4"
- Multiplying decimals: The students will be taught that the decimal point has a fixed place and to move the numbers and not the decimal point as necessary.

Estimation

- Estimation skills are developed and refined with the emphasis on estimating first before proceeding with operations and using estimation in all areas of mathematics e.g. using estimation in measures, shape and space, data and not just in number.
- The teacher leads the work by encouraging them to make a sensible 'guess', to test their guess and revise it where needed.
- Children are taught to investigate the reasonableness of their results.
- Rounding is the most favourable method of estimating number and will be the primary method used in the school.
- The other methods- clustering, front end and special number strategy will be explored where appropriate to child's age, ability and learning style. For further information, refer to TG pp. 32-34.
- Free play, exploration, questioning, discussion and the use of appropriate equipment will be used to teach estimation of measures and shape from infants.
- Estimation skills will be developed for work with calculators so that the child can evaluate the validity of the result given by the machine.

4.2.2 TALK AND DISCUSSION

Taking into consideration the large percentage of EAL children attending our school, particular emphasis will be given to the language of mathematics. Language plays a vital role in the acquisition of mathematical concepts therefore; a strong emphasis will be placed on Talk and Discussion (teacher/pupil, pupil/teacher and pupil/pupil.)

Guided discussion and discussion skills

- Teachers actively model mathematical language to be used, particularly when talking through the problem-solving process.
- Talk and discussion are seen as an integral part of the learning process and opportunities are provided during the Maths class for children to discuss problems with the teacher, other individual children and in groups. Opportunities are provided for pupils to explain how they got the answer to a problem, discuss alternative ways of approaching a problem and/or give oral descriptions of group solutions.
- Discussion skills are enhanced by: turn-taking, active listening, positive response to the opinions of others, confidence in putting forward an opinion, ability to explain clearly their point of view.
- Teachers at the end of maths lessons will recap on the topic and objective and discuss it with the children, allowing an opportunity to focus on any aspect of the topic/objective that needs to be revisited again

Mathematical language in context

- There is an agreed emphasis on the language of mathematics in order to allow both children with EAL and with literacy differences to develop their mathematical abilities.
- There is a common approach to the language used, including the correct use of symbol names, to ensure continuity and consistency, as the pupils' progress through the school (See Appendix 1).
- There is a conscious effort 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, teacher's table is longer/wider than yours.
- There will be a particular emphasis put on the language of measure and positional language in the infant classes.
- A lot of emphasis is put on oral language through the active learning within Ready Set Go. In the infant classes play can be used as an opportunity to reinforce language.

Number facts

- There is a common approach to the teaching of number facts (tables), e.g. for $2+1$, we say two plus one; for $9-6$, we say nine minus six or 9 take away 6; for 3×4 , we say three multiplied by four or three by times four; for $14 \div 7$, we say fourteen divided by seven; for $=$, we say equals (is the same as infants & 1st class)
- Tables will be taught through thinking strategies, games as well as by rote.

<i>Thinking Strategies & Addition Facts</i>	<i>Thinking Strategies & Multiplication Facts</i>
<ul style="list-style-type: none">• Add 0, 1, 2• Commutative property• Add 10 (then 9 and 11)• Subtraction as inverse of addition• Doubles• Near doubles• Story of 10	<ul style="list-style-type: none">• Repeated addition• Skip counting• Commutative property• Division as inverse of multiplication• Doubles• One set more/less• Twice a known fact is twice as much e.g. $2 \times 7 = 14$ so $4 \times 7 = 28$

- The teaching of tables shall proceed in the following order:
 - Addition tables
 - Subtraction tables
 - Multiplication tables
 - Division tables
- Addition and Subtraction tables will be taught in numerical order, beginning with 1 and continuing to 10.
- In teaching multiplication tables the following pattern is followed:
 - $2x/4x/8x$ tables ○ $3x/6x/9x$ tables
 - $10x$ tables ○ $5x$ tables
 - $7x$ tables
- Multiplication tables will be taught initially as repeated addition.
- Division tables are taught as repeated subtraction and follow the same pattern as above.
- We teach subtraction tables separately to addition and multiplication separately to division and link them afterwards.
- Addition and subtraction tables will be learned from First Class; multiplication and division tables from third class. (this may change to the multi-class nature of our school when a new class joins existing class)
- Children will be expected to learn number facts up to 10 in tables.

4.3 ACTIVE LEARNING AND GUIDED DISCOVERY

- We ensure that there is less emphasis and reliance on textbooks and workbooks and more on active learning strategies.
- It is school policy to use concrete materials at all levels and appropriately as concrete materials play an important role in concept development. They provide a link to connect the operational to the real world problem-solving.
- A station teaching approach is used in all classes. It is supported by the SEN team and/or teaching interns and allows for children to work in small groups. The 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. Where possible teachers provide such opportunities during class lessons also.

- Children have access to and use a broad range of mathematical equipment in order that mathematical concepts can be consolidated through investigation and play.
- Pair work and group work is a strategy for learning and discovery which is used in all classes.
- The children are encouraged to develop personal benchmarks, particularly in the measures strand, e.g. noting their height in relation to a metre, the width of their finger as close to a centimetre.
- Games are used to support particular areas of mathematics, though may lend themselves to linkage and integration throughout the curriculum. The children are familiar with how to play them and clear about when they have access to them.

4.4 COLLABORATIVE AND CO-OPERATIVE LEARNING

- Steps are taken to ensure that children learn the skills needed to work as a group rather than just in a group, e.g. listening to others, turn-taking, appreciating that others' opinions are important. There are opportunities provided for children to learn from their peers, e.g. working in pairs/small groups, older children 'teaching' younger ones.
- Teachers use a variety of organisational styles to encourage co-operative and collaborative learning, such as pair work, group work, whole class work, 'buddying'.

4.5 PROBLEM-SOLVING

- To develop and extend pupils' problem solving skills pupils should be exposed to a great variety of problem types within and outside strand contexts – word problems, practical task based problems, diagrammatical problems, open-ended discussions, puzzles, games, trails, etc.
- Pupils should be encouraged to apply skills to a problem (visualise, work backwards, logical reasoning, conjecture, work systematically, find patterns) to extract the relevant information from it, deduce what exactly is being asked of them and then decide on an appropriate strategy, based on their prior knowledge, experience and understanding, to solve the problem.
- Children are encouraged to use their own ideas as a context for problem-solving by talk & discussion, questioning & answering and through creating their own problems orally, graphically and written e.g. my mammy bought a 2 litre bottle of orange for the party yesterday – was it cheaper than two 1 litre bottles. As the children begin to encounter written maths problems they are encouraged to use the RUDE (Read, Underline the key words, Draw a diagram of the problem, Estimate your answer and then attempt to solve the problem) approach. While all children should be exposed to this model regularly and be very familiar with it by the time they reach 3rd class, we are aware of variety of literacy abilities within the class setting.
- Other approaches include BOMDAS (Brackets, Of, Multiplication, Division, Addition & Subtraction)
- It is not essential to choose only one but teachers are aware of those in use, particularly those working with children with special needs.
- Calculators may be used from 4th class on.
- We provide opportunities for all children, Infants to Sixth class and including those with special needs, to have the opportunity to experience problem-solving activities e.g. by giving oral problems; by having them use objects to solve the problem; by using smaller numbers; by using items in the environment, e.g. how many beads can I hold in one hand - a little, a lot, more than teacher.

4.6 USING THE ENVIRONMENT

- The children are learning all the time from the people and materials around them. In our teaching we look at the environment of the classroom, the school building and grounds, the locality, the children's homes and the wider world for opportunities to make maths more real, interesting and fun.
- We use the school and outdoor (including forest) environment to provide opportunities for mathematical problem-solving

- Integration allows for opportunities to use the school environment for Measuring, Recording, Graphs, Surveys, Maths Trails around school and local areas
- We give children opportunities to present/display their mathematical work in the class/student conferences/open days etc.

4.7 CALCULATORS

- Calculators are used, where necessary, from 4th Class onwards.
- Calculators can make problem-solving more accessible to low achieving children who might otherwise never experience correct problem solution because of frequent computational errors
- By removing the obstacles of what, for some children, are complicated algorithms, more time is available for discussing what the problem is, possible strategies for solving it and developing estimation skills.
- Use of calculators also make children more aware of the number system and relationships within, i.e., place- value, patterns etc.
- Calculators help to create a more positive can-do attitude in children towards the subject.
- Calculators can also be used for children to check their answers and in some cases to correct their assignments.

4.8 MENTAL MATHS

- Teachers will endeavour to do mental arithmetic (oral counting etc in infant classes) daily for up to 10 minutes integrated into the morning circle.
- Questions will be based on the topic being covered or previously covered. During maths lessons children will be asked to explain how they arrived at the answer and what operations were carried out. Mental Arithmetic will be seen as a good grounding for problem solving.
- Teachers will not confine the class to textbook based questions. They will also present the children with real life problems associated with their own lives, and problems related to the immediate environment. Here number work will be viewed as an obligatory tool, with the main purpose of assisting in the actual problem solving. Problem solving exercises will develop the ability to plan, take risks, use trial and error, discuss, check and evaluate. Discussion around problem solving will form a key part of the exercise.
- Approximately 5 minutes at the end of each lesson from 1st -6th class will be dedicated to mental maths games and in particular to tables/The Story of 5/10/60/100 etc. Junior Infant classes will learn a number rhyme/song each week
- Infant classes will participate in counting each day using natural materials found in the school and outdoor environment.

4.9 MATHS WEEK

Maths Week to be celebrated every year in February from February 2021.

A number of maths activities and events take place during Maths Week every year including, but not limited to:

- Maths Trails
- Maths games outside
- Puzzle of the day
- Maths songs/poetry
- Hopscotch and other activities on the yard
- Maths party bags given to infant classes
- Class visits- e.g artisits, engineeres, bankers etc

4.10 NUMBER FORMATION

- There is an agreed approach to numeral formation (see Appendix 2)
- There is a whole-school approach to presentation of written work.

5 ASSESSMENT AND RECORD KEEPING

Assessment will be a continuous and dynamic part of the teaching and learning process and shall be a positive experience for the children. The results of assessment will feed back into the teaching and learning process.

The aims of assessment are:

- To enhance the child's learning by providing accurate feedback for both the child and the teacher
- To indicate the child's readiness to proceed to a new topic
- To assist the teacher in the planning and in pacing of mathematics lessons and activities.
- To encourage the teacher to examine the suitability of the curriculum content for his/her particular class and also the methodologies and approaches being used
- To identify children who may have difficulties in specific areas of mathematics
- To identify the kinds of difficulty experienced by children in developing mathematical concepts and skills
- To identify children with special needs
- To help inform parents of progress
- Results on both a class and school basis are looked at to see if there are areas of mathematics that can be improved.
- Records are managed and stored in line with the school's policy on record keeping.

The following areas should be assessed (Revised Curriculum, 1999)

- Conceptual knowledge and understanding
- Problem solving ability
- Computational proficiency
- Recall skills
- Mastery of specific content areas
- Ability to communicate and express mathematical ideas and processes
- Attitude to maths

Assessment is carried out using the following methods:

- Teacher observation
- Teacher-designed tests and tasks
- Work samples, portfolios and projects
- Child self-assessment
- Standardised tests (Sigma T) take place annually from 2nd to 6th class. These take place in May each year and are administered by the class teacher, with the aid of the Special Educational Needs (SEN) Team. Standardised assessment information is shared with parents on the annual report cards. They are informed of regular formative assessment at parent-teacher meetings and/or informal meetings. They are informed in time that a child needs help and they are guided on how to give that help at home.
- Diagnostic tests (administered by NEPS psychologist and results are used to inform teacher planning)

6 CHILDREN WITH DIFFERING NEEDS

- A balanced mathematics programme will cover concepts, skills and problem solving and should consider the child's strengths and weaknesses. The introduction and development of each topic will be structured in a graded and sequential way to allow for the individual child to develop and participate at their own level and pace. This Mathematics plan aims to meet the needs of all the children in the school.
- Teachers in mainstream classes provide a differentiated programme to cater for children with learning difficulties. This may involve varying pace, teaching style, content and methodologies to ensure learning for all children.
- An emphasis is placed on allowing all children to use a variety of materials to learn and to consolidate concepts, computation and problem solving strategies.

6.1 CHILDREN REQUIRING EXTRA SUPPORT

- Where a child demonstrates a particular difficulty, either with a topic, strand or overall, the class teacher will provide extra support and assistance to the child.
- Strategies used by teachers to ensure the participation of children with special educational needs in relation to mathematics include Learning Support/Resource teacher working in-class through co-teaching, consultation with the SEN team, use of concrete materials, calculators etc.
- Collaborative teaching in the form of team teaching takes place, where resources are available, to allow the children to work in smaller more focussed groups.
- There are regular meetings to ensure a collaborative approach between the class teacher and the SET teacher.
- Children who receive scores at or below the 12th percentile on the standardised tests will have priority in attending/accessing the SET teacher for supplementary teaching for Maths. The availability of supplementary teaching for Maths, however, depends on the case load of the SET teacher.
- Arrangement will be in accordance with the recommended selection criteria as determined by the DES. There a collaborative approach in devising:
 - Individual Profile and Learning Programmes (IPLPs) for pupils who have been selected for supplementary teaching (refer to Learning-Support Guidelines pp. 68 – 72).
 - IEPs for pupils who require an individual education plan (refer to Guidelines on the Individual Education Plan Process, NCSE).
- Children with special needs are provided with access to all strands of the mathematics curriculum insofar as that is possible.
- Resources are available to assist children with special needs e.g. cubes, Dienes blocks, tactile number lines, Numicon etc. This is not an exhaustive list.
- ICT is used to support teaching and learning for children with special needs.

6.2 CHILDREN WITH EXCEPTIONAL ABILITY

Where a child demonstrates a particular strength, the class teacher will endeavour to provide differentiated work for the child and to enable them to reach their full potential. The learning support teacher may be involved in order to support the child's learning.

The following strategies are used by the school/class to provide challenges for children of exceptional ability:

- Teachers provide a differentiated programme.
- Children can be facilitated to work on independent research projects.
- The children may be facilitated to work with older/other pupils.
- The school consults with organisations such as Centre for Talented Youth if required.

7 EQUALITY OF PARTICIPATION AND ACCESS

- All children have equal access to mathematics education in Cuan na Gaillimhe CNS, regardless of gender, nationality or cultural and social backgrounds.
- We view the Mathematics plan as playing a key role in ensuring equality of opportunity for all children.
- The programme at each class level is flexible so that the learning requirements of all children may be addressed.
- We provide an equal educational experience for both boys and girls as we recognise that stereotyped expectations of gender roles can inhibit children's educational achievements.
- Access to the services, amenities and resources in the school by children experiencing any form of disadvantage or disability is dealt with by the Learning Support team with direction from the principal.

English as an Additional Language

- Children with English as an Additional Language (EAL) are provided with scaffolding and structure to help with language related questions and mathematical terminology
- Children with EAL may be given the opportunity of having Sigma-T questions read to them

Special Needs

- Children with special needs are included in all activities at an appropriate level.
- Children with special needs may be given extra time to complete Sigma-T standardised tests or may sit them in a different setting- not in a whole class setting but individually in a learning support/resource room.

8 ORGANISATIONAL PLANNING

8.1 TIMETABLE

- As set out by the NCCA and Departmental Circulars we allocate 3 hours 25 mins developing numeracy skills at infant level and 4 hours 10 mins from 1st-6th.
- Maths must be taught on a daily basis and should be indicated clearly in each teacher's timetable.
- Maths time should include mental maths; oral maths and if necessary correction of homework along with the core lesson.
- The process of mathematical learning is also developed through integrated activities or thematic/cross curricular approach.
- Classroom timetables are submitted to the principal at the beginning of each school year and revised when necessary.
- Class teachers and support teachers work collaboratively throughout the school on timetabling, content, strategies and techniques.
- A variety of shared and collaborative teaching is in place to provide additional and complimentary support to children who require such support and where school resources are available to meet these needs
- When drafting timetables for withdrawal of pupils for supplementary teaching, teachers are including these pupils for as much of the mainstream mathematics programme as possible.

8.2 HOMEWORK

- Homework compliments and reinforces work done in school and gives parents an opportunity to be involved in their child's math education.
- All efforts should be made to ensure that mathematics homework reflects the active learning approach as described in the curriculum.
- Teachers make recommendations and provide guidance on hands on maths in the home environment e.g. matching socks, sorting cutlery, plans on calendar.
- Oral tables are given to learn at home from 2nd class.
- From 3rd class small manageable amounts of Maths homework from Monday to Thursday
- Homework may be differentiated taking into account the range of abilities within the class.
- We ensure that children attending resource/learning-support are not going home with two sets of mathematics homework.
- Correction of homework should inform teachers planning in Mathematics.

8.3 RESOURCES AND ICT

- Concrete materials will be used at all levels from early Mathematics in Junior Infants to 6th class. Hands on work will be accompanied by careful dialogue to guide the children in making connections between the concrete and the abstract and to encourage the acquisition of concepts.
- Mathematical equipment, games and publications are available for use by all on a borrow scheme. Non classroom-based resources are currently stored in the Staffroom. New resources will be purchased annually until we reach 6th class and then as needed.
- We will use the school environment to provide opportunities for mathematical problem solving.
- Ready Set Go Math manuals, manipulatives and sets of laminated game sheets are available to Junior & Senior & 1st class teachers.
- Mata sa Rang resources and manuals are available to all teachers. Requests for additional materials should be made to the principal.
- Different textbooks will be trialed in the first few years of the school until a scheme that best suits the school is chosen.
- Where it is possible and or appropriate, IT will be used to provide extension and enrichment activities throughout the school. (See Teacher Guidelines: Mathematics pp. 60-61, Information and Communications Technology (ICT) in the Primary School Curriculum: Guidelines for Teachers)
 - **Before the school uses internet resources, A code of practice to ensure safe Internet usage needs to be developed through an Acceptable Usage Policy.** Teachers are recommended to familiarise themselves with material on websites prior to use by the children.

8.4 INDIVIDUAL TEACHER'S PLANNING AND REPORTING

- All teachers are familiar with the strands/strand units/content objectives and skills for their class level(s). Teachers refer to them regularly when planning for their classes, ensuring all aspects of the curriculum are covered and that there is a balance between the strands throughout the year.
- Teachers will base their termly and short term plans on the approaches set out in the whole school plan for Mathematics. Work completed will be recorded using the Cuntas Míosúil.
- Long term plans are created and stored in the staff folder. They are reviewed annually by year band teachers. Long term plans will be reviewed by principal to ensure continuity from one year band to next.
- Short term plans (Scéim Coicíse) are created, through collaboration with other year band teachers and stored in the staff folder.
- Learning support teachers will draw up IPLPs/IEPs for the children who have been identified as requiring learning support.

8.5 STAFF DEVELOPMENT

- Continuing Professional Development courses are encouraged and supported insofar as is possible by the Board of Management and the Principal.
- Notifications from the Teachers' Centre are emailed to teachers.
- Collaboration and liaison among the staff as a whole is valued and essential to a whole school approach to the teaching of Mathematics.
- Staff are given opportunities at staff meetings to share their knowledge with the whole staff.
- Opportunities for co-teaching will be identified. This will change from term-to-term depending on the needs of the class.
- Staff have access to reference books, materials etc which are stored in the staff room.

8.6 PARENTAL INVOLVEMENT

- The staff welcomes parental involvement in the school and in their child's education. An information meeting is held by the class teacher for all parents at the start of the school year.
- Some methodologies and mathematical language may be explained to parents at class meetings which take place in September each year.
- Relevant information/tips/strategies which may help parents at home to assist their children will be communicated as appropriate.
- 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 that progress. Parents and teachers are welcome to make individual arrangements to discuss matters of relevance at other times throughout the year.
- Parents will be encouraged to support their children each night with homework. Children have a homework journal from 3rd class which is signed by parents to confirm homework is done.
- Parents will be encouraged to promote the use and awareness of maths at home and in the environment, particularly in relation to areas such as 'Time' and 'Money'.
- Parents are further encouraged to expose their children to everyday maths experiences and to use the correct vocabulary in everyday conversation.
- At IEP meetings children's' strengths and needs are discussed and priority learning needs and targets in mathematics where appropriate are agreed.
- Support teachers can meet with parent/s/guardian/s as part of the progress meetings to discuss children's progress, areas of difficulty and plan of work in maths where appropriate.

8.7 COMMUNITY LINKS

- The school recognises that members of the community could make a particular contribution to the mathematics programme e.g. engineers, artists, accountants, bankers etc. They are welcomed into the class to provide assistance. Garda vetting procedures must be followed.
- Agencies/organisations that could be of assistance to the mathematics programme e.g. shops credit unions and banks – money, bakery/butchers – weight, train/bus stations/stops – timetables, money.

9 SUCCESS CRITERIA

The criteria that will indicate success are as follows:

How do we know that the plan has been implemented?

- Teachers' preparation based on this plan.
- Content and methodologies outlined in this plan consistently followed.

How do we know that the plan has achieved its aims? What are the indicators?

- Feedback from teachers/parents/pupils/community in SSE surveys
- Inspectors' suggestions/report
- Children's assessments: Each child's understanding of mathematical concepts and proficiency in mathematics skills will be assessed both formally and informally on an ongoing basis.

10 IMPLEMENTATION AND REVIEW

It is the responsibility of the teaching staff, principal and BOM that this plan is implemented. The Maths Plan will be implemented in September 2020.

It will be necessary to review this plan on a regular basis to ensure optimum implementation of the mathematics curriculum in the school. The next review will be in May 2021 before the school extends to 5th class.

11 RATIFICATION AND COMMUNICATION

This school plan was worked on and discussed by staff during March 2020 School Closure and presented to the Board of Management of Cuan na Gaillimhe –CNS on 27th April 2020. Once this plan has been ratified by Board of Management, it will be issued to all teaching staff and copies will be made available for inspection by parents/inspectors and other interested parties on request from school office.

Chairperson of the Board of Management



Next review will be in May 2021

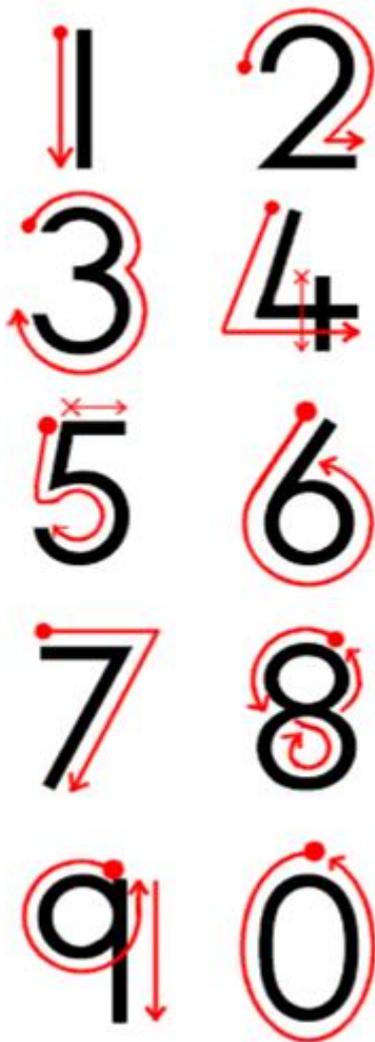
Junior Infants	Senior Infants As Junior Infants plus:	1 st Class As Senior Infants plus	2 nd Class As 1st class plus:
Long/short, longer/shorter More than/less than/ same as First/last Over, under, up, down, on, beside, in Shape-Square, circle, triangle, rectangle Roll/ do not roll Fit/ do not fit Round/not round, thick, thin Long/short, tall/short, wide/narrow, longer, shorter, wider than Heavy/light, heavier/ lighter, balance, weigh Full/nearly full/empty/ Holds more /holds less/ holds as much as Morning/evening, night/day, lunchtime, bedtime, early/late, days of the week, schooldays, weekends Buy, sell, spend, coins, how much? cent Enough/more/as many as/less	Ordinal number – first,second, third, last Above, below, near, far, right, left Cube, cuboid, sphere, cylinder Edge, corner, face, straight, curved, round, flat, side, corner As long as/as wide as/longest/shortest Yesterday/today/tomorro w/ seasons/soon/not yet/birthday Price, cheap/expensive, change, too much/too little Pictogram sets	Between, underneath, on top of, around, through, left, right Square, rectangle, triangle, circle, semicircle Half Cube, cuboid, cylinder, sphere Length, width, height, measure, nearly a metre, a bit more than/a bit less than a metre Heavy, heavier, heaviest, light, lighter, lightest, balance Pour, fill, full, empty, holds more, less or the same amount as Reading day, date and month using calendar Hour, half hour Metre, litre, kilogram	Quarter Cone, oval Metre, centimetre Euro Symmetry Area Digital clock/time Block graph Corners
3 rd Class As 2 nd class plus	4 th Class As 3 rd class plus	5 th Class As 4 th class plus	6 th Class As 5 th class plus
Regular/irregular shapes Sphere, triangular sphere, prism, pyramid, hexagon Sides, angles, parallel and non- parallel lines Tessellate Symmetry Vertical, horizontal and parallel lines Clockwise/anti-clockwise Gramme, kilogram Possible, impossible, might, certain, not sure Roll, toss, spin, chance, random Tenths Minute Equivalent Bar chart	Equilateral, isosceles, scalene triangle, parallelogram, rhombus, pentagon, octagon Diagonal Oblique, perpendicular lines Acute, obtuse and right angles Perimeter Hundredths Chance, likely, unlikely, never, definitely Bar line graph Scale	Thousandths Prime and composite numbers Square and rectangular numbers Factors, multiples Positive and negative numbers Equations Quadrilaterals Diameter, radius, chord, circumference, arc, sector, tangent Tetrahedron Vertices Reflex angle, degrees Millimetre Square metres/centimetres Millilitres Pie chart, multiple bar chart Statistics likelihood	Square roots Quotients Octahedron Scale Ares/hectares Trend graph

Children will be encouraged to form numbers in a standard way, across all classes in the school, with some exceptions listed below.

Below is the guide that is used across the school, followed by a number poem.

Spots indicate the starting position of the pencil. The pencil should remain on the paper, following the arrows. For the numbers four and five, the pencil must be raised before completing the second part of each number. **Crosses** indicate the second starting positions.

Here is a simple poem to help teaching numeral formation:



Number 1 is like a stick. A straight line that is very quick.

For number 2, go right around. Then make a line across the ground.

Go right around. What will it be? Go round again to make a 3.

Down and over and down some more.
That's the way to make a 4.

Go down and around. Then you stop.
Finish the 5 with a line on top.

Make a curve. Then make a loop.
There are no tricks to make a 6.

Across the sky and zoom down to the ground.
That 7 is straight not round.

Make an "S" and then don't wait. Go up again
to make an 8.

Make a loop and then a line. That's the way to
make a 9.

Make a 1 and then a 0.
10 are all your fingers you know!