

# Canal Way Educate Together National School

## Mathematics Plan

### Introductory Statement and Rationale

#### Introductory Statement

This whole school plan for Mathematics was devised with the view to guiding the consistent, effective implementation of the Maths curriculum within the school.

The planning framework drafted by the Primary Curriculum Support Programme (PCSP), as well as guidelines drafted by the School Development Planning Support (SDPS), the National Council for Curriculum and Assessment (NCCA) and the Department of Education (DES) were consulted when drafting the plan.

#### Rationale

The level and variety of work being undertaken in the school in Mathematics was taken into account when drafting the plan as well as when discussing it with all staff. We envisage that pupils will benefit from the development and implementation of a co-ordinated programme of learning.

### Vision and Aims

#### Vision

As a school we are committed to the holistic development of all pupils in order to assist them in contributing and playing a fulfilling role in their own community. The school recognises mathematical literacy as a central importance in providing the child with the necessary skills to live a full life as a child and later as an adult. Mathematics is recognised as one of the sciences in FETNS. We also recognise the scope for creative thinking in Mathematics and the school encourages and values children's varying approaches to Maths.

We aim to develop a lively interest in Maths and give each pupil the opportunity to grasp basic Mathematical structure and concepts and to develop computational skills. Opportunities will be provided to focus on learning through discovery and to apply conceptual knowledge to practical situations. There will be an emphasis on a problem solving approach to develop each pupil's reasoning ability and logic in relation to Mathematical concepts.

CWETNS recognises that the child learns from the people and materials around him/her. If the child is given the chance to manipulate, touch and see objects that help him/her to acquire an understanding of concepts, he/she will understand more effectively than if words and symbols are the only learning tools. The child needs guidance from the teacher and peers in formulating theories about what it is he/she is discovering. The child also needs help in developing the language for describing accurately what it is he/ she is doing.

#### Aims:

In line with the Revised Primary School Curriculum, CWETNS endorses the following aims:

- To develop a positive attitude towards Mathematics and an appreciation of both its practical and aesthetics 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 proficiency in fundamental mathematical skills and in recalling basic number facts.
- To enable the child to acquire an understanding of mathematical concepts

## Curriculum / Content:

All teachers are familiar with the aims and objectives of the mathematics Curriculum and refer to them regularly when planning for their classes. Teachers should refer to the curriculum books when planning to ensure that the skills, content and aims of the curriculum are integral to the teaching of mathematics in the school.

### Skill development:

The mathematical skills outlined in the mathematics curriculum are at the core of the curriculum and should be developed through engaging with the content of the strands and strand units.

The skills outlined in the curriculum are;

- applying and problem-solving
- communicating and expressing
- integrating and connecting
- reasoning
- implementing
- Understanding and recalling.

### Strands and Strand Units:

Early Mathematical Activities (Infants): Classifying, Matching, Comparing and Ordering.

- Number:  
Counting, Comparing and Ordering, Analysis of Number (introduced in Infants)  
Numeration, Place Value, Operations: Addition, Subtraction, Fractions (introduced in 1st/2nd)  
Multiplication, Division, Decimals (introduced in 3rd/4th)  
Percentages, Number theory (introduced in 5th/6th)
- Algebra:  
Extending patterns (introduced in Infants)  
Extending and using patterns (introduced in 1st/2nd)  
Number patterns and sequences, Number sentences (introduced in 3rd/4th)  
Directed numbers, Rules and properties, Variables, Equations (introduced in 5th/6th)
- Shape and Space:  
Spatial Awareness, 2D shapes 3D shapes (introduced in Infants)  
Symmetry, Angles (introduced in 1st/2nd)  
Lines and angles (introduced in 3rd/4th)
- Measures:  
Length, Weight, Capacity, Time, Money (introduced in infants)  
Area (introduced in 1st/2nd)
- Data:  
Representing and reading data in a variety of forms: Pictograms, Graphs, and Charts etc.

## Literacy and Numeracy strategy

Literacy and numeracy for learning and life is a government strategy aimed at developing literacy and numeracy among children and young people.

- The strategy advocates the use of Aistear in the infant classes to support the greater emphasis to be placed on numeracy in schools. The Aistear programme will be implemented in our school to help support the language and numeracy development of children.
- Additional time is to be spent on numeracy in line with departmental guidelines. 3 hours and 25 minutes should be spent on numeracy in the infant classes and 4 hours and 10 minutes in all other classes. Integration of subjects, the use of discretionary curricular time, re-allocating time spent on other subjects or prioritising curriculum objectives can be utilised to facilitate this.
- Standardised mathematics test results are to be communicated to parents of children from 2<sup>nd</sup> to 6<sup>th</sup> classes.

- On receipt of a list of the children in attendance at a post primary school the principal is required to send a copy of the end of year report card (including standardised test results at 6<sup>th</sup> class) to the secondary school the child has transferred to.

## **Mathematics programmes**

### **Ready set go mathematics**

Ready, Set Go Maths was developed in Northern Ireland in the early 1990's by educationalist Eunice Pitt. Its origins are rooted in a two-year action research project which identified use of mathematical language and purposefully designed activities the key factors in determining the successful teaching and learning of mathematics. It is a programme pitched at teachers of infant classes and focuses specifically on the development of early number skills and concepts. Typical components include Sorting, Making patterns, Early counting, and are all designed to give a secure start in early number. The programme will be implemented in the infant classrooms as a tool to support the development of the mathematical skills and content outlined in the mathematics curriculum.

The programme is divided into the following sections;

- Sorting
- Relationships and operations
- Counting and recognition
- Understanding number
- Making it happen
- number games

### **Maths Recovery**

Maths Recovery is an early intervention programme focussing solely on the number aspect of mathematics developed by R.J. Wright in New South Wales. Maths Recovery comprises the intensive, individualised or small group teaching of low-attaining children from first class by specialist teachers for 10-15 weeks. During this time the child progresses through a stage of early arithmetical learning. Finding out where a child is at along this is done through an assessment tasks. The actual teaching comprises a lesson planned for each pupil and typical characteristics of the lessons are problem solving, teaching just beyond the cutting edge, and close observation of the child's behaviours.

Although the programme was not designed for whole class teaching, some of the approaches and activities contained in the programme can be utilised to support whole class mathematics lessons from infant to second classes. This can be done through the;

- Use of the resources and representations
- The sequencing of concepts
- The emphasis on language

## **Approaches and methodologies**

### **Problem solving**

Developing the ability to solve problems is an important factor in the study of mathematics. Problem-solving also provides a context in which concepts and skills can be learned and in which discussion and co-operative working may be practised. Moreover, problem-solving is a major means of developing higher-order thinking skills.

- Problem solving should be utilised as a means through which the content of the curriculum is delivered and explored
- Low ceiling-high threshold problems can be used as a means of differentiating in a whole class
- The process of solving a problem can be more valuable than the end result
- Word problems are only one form of mathematical problem
- The teacher acts as a partner in the process, supporting the children but not directing their approach.
- The sharing of children's ideas and approaches is integral to this process

## **Learning through play**

The use of play and games should form an integral part of each teachers mathematics planning. The following are examples of some of the opportunities teachers can avail of;

- Aistear
- Online games
- Board games
- Parents maths games
- Ready set go maths games
- Scratch (coding)

## **Talk and discussion**

### **Mixed ability grouping**

Mixed ability grouping for mathematics provides all children with the opportunity to discuss and be part of a mathematical dialogue that supports the development of children of all ability. Group work will include specific work on collaborative group work (see United we solve as reference).

### **Maths trails/ use of the environment**

Maths trails are important in enabling children to see mathematics in the world around them. They can be done in class, in the school building, school grounds or local area. There are a number of approaches that will be explored.

- Children devising mathematics trails questions for their own classes
- Children devising mathematics trails questions for their younger classes
- Teacher designed maths trails
- Exploration of mathematics in the environment (e.g. shape or pattern hunt)

## **ICT and Maths**

ICT can help support children's mathematical development. Mathematics games can help reinforce what is done in the classroom.

- Photos of mathematical activities will be put on school website
- Coding can be explored to support mathematical development and a link to the resource will be placed on the school website.
- See appendix A for list of maths website and links.

## **Language use**

Proficient mathematical language use is an essential component of our school mathematics plan. We will;

- Encourage children to explain their reasoning and thought processes
- Children should be encouraged to build on mathematical discussions between peers that are not teacher led.
- Children should be encouraged to question each other during mathematical discussions
- The emphasis will be on the quality of explanation and discussion rather than on the quantity of examples practiced
- Focus on the correct language use for the = symbol. The language will focus on the equality meaning of the symbol rather than a computational meaning. Language such as "is", "makes" and "the answer is" will be avoided and "equals" or "is the same as" will be used.

## **Differentiation**

Each child should be encouraged to achieve their full potential according to their individual ability.

- Small group work/ station teaching can help support the varying abilities of all children
- Differentiation of learning objectives, questioning, pace, teaching style, resources, tasks, support, outcome and grouping will be used in class to differentiate for children's individual needs.
- Mixed ability grouping and pairing will be used to provide additional support to children

### **Home-school links**

We recognise the importance of a child's home life in creating a positive attitude to mathematics. We will endeavour to create positive home-school mathematical experiences through the following;

- Parental involvement in in-class maths games
- Parental involvement in in-class maths station teaching
- Adding links to maths games on the class web pages
- Providing parents with information regarding any mathematical events in their locality
- Collecting information about local maths amenities and maths trails and sharing this with the parents' body through the school website and Facebook account.
- Homework in mathematics, as well as reinforcing concepts learned in school, should also involve activities to stimulate mathematical exploration at home.

The importance of the process, trial and error and estimation rather than an over-emphasis on getting the right answer will be outlined to parents.

### **Outside Initiatives**

There are other initiatives that help support the development and enjoyment of mathematics. These include but are not limited to;

- Maths week
- Maths eyes initiative
- Coding initiatives

### **Assessment of and for learning:**

Assessment is the process of gathering, recording, interpreting, using, and reporting information about a child's progress and achievement in developing knowledge, skills and attitudes. Assessment of and for learning often overlap and happen simultaneously. Assessment for learning is generally part of the classroom routine and assessment of learning is usually carried out at the end of a unit of work. Although assessment of learning in mathematics is a requirement of the Department of Education and Skills, assessment for learning should be the main focus of classroom assessment. Although proficiency in computation is essential, assessment should encompass examination of the child's understanding of mathematical concepts and skills and his/her ability to verbalise that understanding.

### **Departmental Requirements:**

Circular 0056/2011 provides that standardised testing in mathematics should be done as follow;

- During the period May/June for all students in 2nd class
- During the period May/June for all students in 4th class
- During the period May/June for all students in 6th class

The results of these standardised tests must be reported to parents on the report card sent home. The NCCA has developed a leaflet in many languages explaining these results and this should accompany the report card.

The school is required to report the aggregate standardised test results for 2nd, 4th and 6th classes once annually to the Department of Education and Skills.

### **Standardised testing:**

Standardised testing in mathematics will be carried out during the period May/June in each class from First Class to Sixth Class. These results will be reported to parents each year and the results for 2<sup>nd</sup>, 4<sup>th</sup> and 6<sup>th</sup> classes will be reported once annually to the Department of Education and Skills.

The school will review the results of these tests to inform future teaching and learning opportunities.

### **Assessment in the infant classroom: Ready set go maths**

The ready set go maths manual contains individual checklists to be completed as a form of assessment.

These checklist will be completed as part of the implementation of the ready set go maths programme in the infant classes.

These checklists should be utilised as a form of assessment for and of learning.

## Classroom assessment Methods

There are a variety of classroom assessment methods that can be used. A variety of assessment methods should be utilised to best support planning and learning in class. It is envisioned that children will become more adept at self-assessment as they move through the class levels. Classroom assessment methods include;

- Self-assessment
- Conferencing
- Portfolio assessment
- Concept mapping
- Questioning
- Teacher observation
- Teacher designed tasks and tests
- Standardised testing

Class	Strand	Strand Unit	Objectives
Junior Infants	Early Mathematical Activities	Classifying	To classify objects on the basis of one attribute, such as colour, shape, texture or size  To identify the complement of a set (i.e. elements not in a set)
Junior Infants	Early Mathematical Activities	Matching	To match equivalent and non-equivalent sets using one-to-one correspondence
Junior Infants	Early Mathematical Activities	Comparing	To compare objects according to length, width, height, weight, quantity, thickness or size  To compare sets without counting
Junior Infants	Early Mathematical Activities	Ordering	To order objects according to length or height  To order sets without counting
Junior Infants	Number	Counting	To count the number of objects in a set, 1-10
Junior Infants	Number	Comparing and Ordering	To compare equivalent and non-equivalent sets 1-5 by matching without using symbols  To order sets of objects by number, 1-5  To use the language of ordinal number: first, last
Junior Infants	Number	Analysis of Number	<u>Combining</u>  To explore the components of number 1-5

			<p>To combine sets of objects, totals to</p> <p><u>Numeration</u></p> <p>To develop an understanding of the conservation of number, 1-5</p> <p>To read, write and order numerals, 1-5</p> <p>To identify the empty set and the numeral zero</p> <p>To subitise (tell at a glance) the number of objects in a set, 1-5</p> <p>To solve simple oral problems, 0-5</p> <p><u>Partitioning</u></p> <p>To partition sets of objects, 1-5</p>
Junior Infants	Algebra	Extending patterns	To identify, copy and extend patterns in colour, shape and size
Junior Infants	Shape and space	Spatial awareness	To explore, discuss, develop and use the vocabulary of spatial relations
Junior Infants	Shape and space	2-D shapes	<p>To sort and name 2-d shapes: square, circle, triangle, rectangle</p> <p>To use suitable structures materials to create pictures</p> <p>To solve problems involving shape</p>
Junior Infants	Shape and space	3-D shapes	<p>To sort 3-D shapes, regular and irregular</p> <p>To solve tasks and problems involving shape</p>
Junior Infants	Measures	Length	<p>To develop an understanding of the concept of length through exploration, discussion, and use of appropriate vocabulary</p> <p>To compare and order objects according to length / height</p>
Junior Infants	Measures	Weight	<p>To develop an understanding of the concept of weight through exploration, handling of objects, and use of appropriate vocabulary</p> <p>To compare objects according to weight</p>
Junior Infants	Measures	Capacity	<p>To develop an understanding of the concept through exploration and the use of appropriate vocabulary</p> <p>To compare containers according to capacity</p>
Junior Infants	Measures	Time	<p>To develop an understanding of the concept of time through the use of appropriate vocabulary</p> <p>To sequence daily events or stages in a story</p>
Junior Infants	Measures	Money - Euro	<p>To recognise and use coins (up to 5 cents)</p> <p>To solve practical tasks and problems using money</p>
Junior Infants	Data	Representing and interpreting data	<p>To sort and classify sets of objects by one criterion</p> <p>To match sets, equal and unequal</p> <p>To represent and interpret a set of simple mathematical data using real objects, models and pictures</p>

Class	Strand	Strand Unit	Objectives
Senior Infants	Number	Counting	To count the number of objects in a set, 0-20
Senior Infants	Number	Comparing and Ordering	To compare equivalent and non-equivalent sets 0-10 by matching To order sets of objects by number, 0-10 To use the language of ordinal number: first, second, third, last
Senior Infants	Number	Analysis of Number	<u>Combining</u> To explore the components of number, 1-10 To combine sets of objects, totals to 10  <u>Numeration</u> To develop an understanding of the conservation of number, 0-10 To read, write and order numerals, 0-10 To identify the empty set and the numeral zero To estimate the number of objects in a set, 2-10 To solve simple oral and pictorial problems, 0-10  <u>Partitioning</u> To partition sets of objects, 0-10 To use the symbols + and = to construct word sentences involving addition
Senior Infants	Algebra	Extending patterns	To identify, copy and extend patterns in colour, shape, size and number (3-4 elements) To discover different arrays of the same number To recognise patterns and predict subsequent numbers
Senior Infants	Shape and space	Spatial awareness	To explore, discuss, develop and use the vocabulary of spatial relations
Senior Infants	Shape and space	2-D shapes	To sort, describe and name 2-D shapes: square, circle, triangle, rectangle To combine and divide 2-D shapes to make larger or smaller shapes To solve problems involving shape and space To give simple moving and turning directions
Senior Infants	Shape and space	3-D shapes	To sort, describe and name 3-D shapes: cube, cuboid, sphere and cylinder To combine 3-D shapes to make other shapes To solve tasks and problems involving shape

Senior Infants	Measures	Length	To develop an understanding of the concept of length through exploration, discussion, and use of appropriate vocabulary To compare and order objects according to length or height To estimate and measure length in non-standard units To select and use appropriate non-standard units to measure length, width or height. Discuss reasons for choice.
Senior Infants	Measures	Weight	To develop an understanding of the concept of weight through exploration, handling of objects and use of appropriate vocabulary To compare and order objects according to weight To estimate and weigh in non-standard units To select and use appropriate non-standard units to weigh objects
Senior Infants	Measures	Capacity	To develop an understanding of the concept of capacity through exploration and the use of appropriate vocabulary To compare and order containers according to capacity To estimate and measure capacity in non-standard units To select and use appropriate non-standard units to measure capacity
Senior Infants	Measures	Time	To develop an understanding of the concept of time through the use of appropriate vocabulary To sequence daily and weekly events or stages in a story To read time in one hour intervals
Senior Infants	Measures	Money-Euro	To recognise coins up to 20 cents and use coins up to 10 cents To solve practical tasks and problems using money
Senior Infants	Data	Representing and interpreting data	To sort and classify sets of objects by one and two criteria To represent and interpret data in two rows or columns using real objects, models and pictures
<b>Class</b>	<b>Strand</b>	<b>Strand Unit</b>	<b>Objectives</b>
First Class	Number	Counting and numeration	To count the number of objects in a set To read, write and order numerals, 0 -99 To estimate the number of objects in a set 0-20
First Class	Number	Place value	To identify and record place value 0-99
First Class	Number	Fractions	To establish and identify half of sets to 20
First Class	Number	Operations	<u>Addition</u> To develop an understanding of addition by combining or partitioning sets, use concrete materials 0-20 To explore, develop and apply the commutative, associative and zero properties of addition

			<p>To develop and / or recall mental strategies for addition facts within 20</p> <p>To construct number sentences and number stories; solve problems involving addition within 20</p> <p>To add numbers without and with renaming within 99</p> <p>To explore/discuss repeated addition and group counting</p> <p><u>Subtraction</u></p> <p>To develop an understanding of subtraction as deducting, as complementing and as difference 0-20</p> <p>To develop and/or recall mental subtraction strategies 0-20</p> <p>To construct number sentences and number stories; solve problems involving subtraction 0-20</p> <p>To estimate differences within 99</p> <p>To subtract numbers without renaming within 99</p> <p>Use the symbols +. -. =</p> <p>To solve one-step problems involving addition or subtraction</p>
First Class	Number	Comparing and Ordering	<p>To compare equivalent and non-equivalent sets 0-20</p> <p>To order sets of objects by number</p> <p>To use the language of ordinal number, first to tenth</p>
First Class	Algebra	Extending and using patterns	<p>To recognise pattern, including odd and even numbers</p> <p>To explore and use patterns in addition facts</p> <p>To understand the use of a frame to show the presence of an unknown number</p>
First Class	Shape and space	Spatial awareness	<p>To explore, discuss, develop and use the vocabulary of spatial relations</p> <p>To give and follow simple directions within the classroom and school settings</p>
First Class	Shape and space	2-D shapes	<p>To sort, describe, compare and name 2-D shapes: square, rectangle, triangle, circle, semicircle</p> <p>To construct and draw 2-D shapes</p> <p>To combine and partition 2-D shapes</p> <p>To identify halves of 2-D shapes</p> <p>To identify and discuss the use of 2-D shapes in the environment</p>
First Class	Shape and space	3-D shapes	<p>To describe, compare and name 3-D shapes, including cube, cuboid, cylinder and sphere</p>

			<p>To discuss the use of 3-D shapes in the environment</p> <p>To solve and complete practical tasks and problems involving 2-D and 3-D shapes</p> <p>To explore the relationship between 2-D and 3-D shapes</p>
First Class	Measures	Length	<p>To estimate, compare, measure and record length using non-standard units</p> <p>To select and use appropriate non-standard measuring units and instruments</p> <p>To estimate, measure and record length using standard unit (the metre)</p> <p>To solve and complete practical tasks and problems involving length</p>
First Class	Measures	Weight	<p>To estimate, compare, measure and record weight using non-standard units</p> <p>To select and use appropriate non-standard measuring units and instruments</p> <p>To estimate, measure and record weight using standard unit (the kilogram) and solve simple problems</p>
First Class	Measures	Capacity	<p>To estimate, compare, measure and record capacity using non-standard units</p> <p>To select and use appropriate non-standard measuring units and instruments</p> <p>To estimate, measure and record capacity using standard unit (the litre) and solve simple problems</p>
First Class	Measures	Time	<p>To use the vocabulary of time to sequence events</p> <p>To read and record time using simple devices</p> <p>To read time in hours and half-hours on 12-hour analogue clock</p> <p>To read day, date and month using calendar</p>
First Class	Measures	Money-Euro	<p>To recognise, exchange &amp; use coins up to the value of 50c</p> <p>To calculate how many items may be bought with a given sum</p>
First Class	Data	Representing and interpreting data	<p>To sort and classify objects by two and three criteria</p> <p>To represent and interpret data in two, three or four rows or columns using real objects, models and pictures</p>
<b>Class</b>	<b>Strand</b>	<b>Strand Unit</b>	<b>Objectives</b>
Second Class	Number	Counting and numeration	<p>To count the number of objects in a set</p> <p>To read, write and order numerals, 0 -199</p> <p>To estimate the number of objects in a set 0-20</p>
Second Class	Number	Place value	To identify and record place value 0-199
Second Class	Number	Fractions	To establish and identify halves and quarters of sets to 20

Second Class	Number	Operations	<p><u>Addition</u></p> <p>To develop an understanding of addition by combining or partitioning sets</p> <p>To explore, develop and apply the commutative, associative and zero properties of addition</p> <p>To develop and / or recall mental strategies for addition facts within 20</p> <p>To construct number sentences and number stories; solve problems involving addition within 99</p> <p>To add numbers without and with renaming within 99</p> <p>To explore and discuss repeated addition and group counting</p> <p><u>Subtraction</u></p> <p>To develop an understanding of subtraction as deducting, as complementing and as difference</p> <p>To develop and recall mental strategies for subtraction 0-20</p> <p>To construct number sentences involving subtraction of whole numbers; solve problems involving subtraction</p> <p>To estimate differences within 99</p> <p>To subtract numbers without renaming within 99</p> <p>Use the symbols +, -, =</p> <p>To solve one-step problems involving addition or subtraction</p>
Second Class	Number	Comparing and Ordering	<p>To compare equivalent and non-equivalent sets</p> <p>To use the language of ordinal number</p>
Second Class	Algebra	Extending and using patterns	<p>To recognise patterns and predict subsequent numbers</p> <p>To explore and use patterns in addition facts</p> <p>To understand the use of a frame to show the presence of an unknown number</p>
Second Class	Shape and space	Spatial awareness	<p>To explore, discuss, develop and use the vocabulary of spatial relations</p> <p>To give and follow simple directions within the classroom and school settings, including turning directions using half and quarter turns</p>
Second Class	Shape and space	Angles	<p>To explore and recognise angles in the environment</p>
Second Class	Shape and space	Symmetry	<p>To identify line symmetry in shapes and in the environment</p>

Second Class	Shape and space	2-D shapes	<p>To sort, describe, compare and name 2-D shapes: square, rectangle, triangle, circle, semicircle, oval</p> <p>To construct and draw 2-D shapes</p> <p>To combine and partition 2-D shapes</p> <p>To identify half and quarter of shapes</p> <p>To identify and discuss the use of 2-D shapes in the environment</p>
Second Class	Shape and space	3-D shapes	<p>To describe, compare and name 3-D shapes, including cube, cuboid, cylinder, sphere and cone</p> <p>To discuss the use of 3-D shapes in the environment</p> <p>To solve and complete practical tasks and problems involving 2-D and 3-D shapes</p> <p>To explore the relationship between 2-D and 3-D shapes</p>
Second Class	Measures	Length	<p>To estimate, compare, measure and record length using non-standard units</p> <p>To select and use appropriate non-standard measuring units and instruments</p> <p>To estimate, measure and record length using metre and centimetre</p> <p>To solve and complete practical tasks and problems involving length</p>
Second Class	Measures	Area	<p>To estimate and measure area using non-standard units</p>
Second Class	Measures	Weight	<p>To estimate, compare, measure and record weight using non-standard units</p> <p>To select and use appropriate non-standard measuring units and instruments</p> <p>To estimate, measure and record weight using kilogram, half kilogram and quarter kilogram and solve simple problems</p> <p>To explore and discuss instances when objects or substances that weigh 1 kg vary greatly in size</p>
Second Class	Measures	Capacity	<p>To estimate, compare, measure and record capacity using non-standard units</p> <p>To select and use appropriate non-standard measuring units and instruments</p> <p>To estimate, measure and record capacity using litre, half-litre and quarter-litre bottles and solve simple problems</p>
Second Class	Measures	Time	<p>To use the vocabulary of time to sequence events</p> <p>To read and record time using simple devices</p> <p>To read time in hours and half-hours on 12-hour analogue clock</p> <p>To read time in hours and half-hours on digital clock</p>

			To read day, date and month using calendar and identify the season
Second Class	Measures	Money-Euro	To recognise, exchange and use coins up to the value of €2 To write the value of a group of coins; record money amounts as cents and later as euro
Second Class	Data	Representing and interpreting data	To sort and classify objects by two and three criteria To represent, read and interpret simple tables and charts (pictograms) To represent, read and interpret simple block graph
<b>Class</b>	<b>Strand</b>	<b>Strand Unit</b>	<b><u>Objectives</u></b>
Third Class	Number	Operations	<u>Addition and Subtraction</u> To add and subtract, without and with renaming, within 999 To know and recall addition and subtraction facts To solve word problems involving addition and subtraction  <u>Division</u> To develop an understanding of division as sharing and as repeated subtraction, without and with remainders To develop and / or recall division facts within 100 To divide a one-digit number by a one-digit number without and with remainders To solve and complete practical tasks and problems involving division of whole numbers  <u>Multiplication</u> To develop and understanding of multiplication as repeated addition and vice versa To explore, understand and apply the zero, commutative and distributive properties of multiplication To develop and / or recall multiplication facts within 100 To multiply a one-digit or two-digit number by 0-10 To solve and complete practical tasks and problems involving multiplication of whole numbers
Third Class	Number	Place Value	To explore and identify place value in whole numbers, 0-999

			<p>To read, write and order three-digit numbers</p> <p>To round whole numbers to the nearest ten or hundred</p> <p>To explore and identify place value in decimal numbers to one place of decimals</p>
Third Class	Number	Fractions	<p>To identify fractions and equivalent forms of fractions with denominators 2,4,8 and 10</p> <p>To compare and order fractions with appropriate denominators and position on the number line</p> <p>To calculate a fraction of a set using concrete materials</p> <p>To develop an understanding of the relationship between fractions and division</p> <p>To calculate a unit fraction of a number and calculate a number, given a unit fraction of the number</p> <p>To solve and complete practical tasks and problems involving fractions</p>
Third Class	Number	Decimals	<p>To identify tenths and express in decimal form</p> <p>To order decimals on the number line</p> <p>To solve problems involving decimals</p>
Third Class	Algebra	Number patterns and sequences	<p>To explore, recognise and record patterns in number, 0-999</p> <p>To explore, extend and describe (explain rule for) sequences</p> <p>To use patterns as an aid in the memorisation of number facts</p>
Third Class	Algebra	Number sentences	<p>To translate an addition or subtraction number sentence with a frame into a word problem (frame not initial position)</p> <p>To solve one-step number sentences</p>
Third Class	Shape and space	2-D shapes	<p>To identify, describe, and classify 2-D shapes: square, rectangle, triangle, hexagon, circle, semicircle, oval and irregular shapes</p> <p>To explore, describe and compare the properties (sides, angles, parallel and non-parallel lines) of 2-D shapes</p> <p>To construct and draw 2-D shapes</p> <p>To combine, tessellate and make patterns with 2-D shapes</p> <p>To identify the use of 2-D shapes in the environment</p> <p>To solve and complete practical tasks and problems involving 2-D shapes</p>
Third Class	Shape and space	3-D shapes	<p>To identify, describe, and classify 3-D shapes, including cube, cuboid, cylinder, cone, sphere, triangular prism, pyramid</p> <p>To explore, describe and compare the properties of 3-D shapes</p> <p>To explore and describe the relationship of 3-D shapes with constituent 2-D shapes</p>

			<p>To construct 3-D shapes</p> <p>To solve and complete practical tasks and problems involving 2-D and 3-D shapes</p>
Third Class	Shape and space	Symmetry	<p>To identify line symmetry in the environment</p> <p>To identify and draw lines of symmetry in two dimensional shapes</p>
Third Class	Shape and space	Lines and angles	<p>To identify, describe and classify, vertical, horizontal and parallel lines</p> <p>To recognise an angle in terms of a rotation</p> <p>To classify angles as greater than, less than or equal to a right angle</p> <p>To solve problems involving lines and angles</p>
Third Class	Measures	Length	<p>To estimate, compare, measure and record lengths of a wide variety of objects using appropriate metric units (m, cm)</p> <p>To rename units of length in m and cm</p> <p>To solve and complete practical tasks and problems involving the addition and subtraction of units of length (m, cm)</p>
Third Class	Measures	Area	To estimate and measure the area of regular and irregular shapes
Third Class	Measures	Weight	<p>To estimate, compare, measure and record the weight of a variety of objects using appropriate metric units (kg, g)</p> <p>To solve and complete practical tasks and problems involving the addition and subtraction of units of weight (kg and g)</p>
Third Class	Measures	Capacity	<p>To estimate, compare, measure and record capacity of a wide variety of objects using appropriate metric units (l, ml)</p> <p>To solve and complete practical tasks and problems involving the addition and subtraction of units of capacity (l, ml)</p>
Third Class	Measures	Time	<p>To consolidate and develop further a sense of time passing</p> <p>To read time in five-minute intervals on analogue and digital clock (12 hour)</p> <p>To record time in analogue and digital forms</p> <p>To read and interpret simple timetables</p> <p>To rename minutes as hours and hours as minutes</p> <p>To read dates from calendars and express weeks as days and vice versa</p> <p>To solve and complete practical tasks and problems involving times and dates</p>
Third Class	Measures	Money-Euro	To rename amounts of euro or cents and record using symbols and decimal point

			To solve and complete one-step problems and tasks involving the addition and subtraction of money
Third Class	Data	Representing and interpreting	To collect, organise and represent data using pictograms, block graphs and bar charts  To read and interpret tables, pictograms, block graphs and bar charts  To use data sets to solve and complete practical tasks and problems
Third Class	Data	Chance	To use vocabulary of uncertainty and chance: possible, impossible, might, certain, not sure  To order events in terms of likelihood of occurrence  To identify and record outcomes of simple random processes
<b>Class</b>	<b>Strands</b>	<b>Strand Unit</b>	<b>Objectives</b>
Fourth Class	Number	Place Value	To explore and identify place value in whole numbers, 0-9999  To read, write and order four-digit numbers and solve simple problems  To round whole numbers to the nearest thousand  To explore and identify place value in decimal numbers to two places of decimals
Fourth Class	Number	Operations	<u>Addition and Subtraction</u>  To add and subtract, without and with renaming, within 9999  To know and recall addition and subtraction facts  To solve word problems involving addition and subtraction  <u>Division</u>  To develop an understanding of division as sharing and as repeated subtraction, without and with remainders  To develop and / or recall division facts within 100  To divide a three-digit number by a one-digit number without and with remainders  To use a calculator to check estimates  To solve and complete practical tasks and problems involving division of whole numbers  <u>Multiplication</u>  To develop and understanding of multiplication as repeated addition and vice versa

			<p>To explore, understand and apply the zero, commutative, distributive and associative properties of multiplication</p> <p>To develop and recall multiplication facts within 100</p> <p>To multiply a two-digit or three-digit number by a one or two-digit number</p> <p>To use a calculator to check estimates</p> <p>To solve and complete practical tasks and problems involving multiplication of whole numbers</p>
Fourth Class	Number	Fractions	<p>To identify fractions and equivalent forms of fractions with denominators 2,3,4,5,6,8,9,10 and 12</p> <p>To compare and order fractions with appropriate denominators and position on the number line</p> <p>To calculate a fraction of a set using concrete materials</p> <p>To calculate a number, given a multiple fraction of the number</p> <p>To express one number as a fraction of another number</p> <p>To solve and complete practical tasks and problems involving fractions</p>
Fourth Class	Number	Decimals	<p>To add and subtract whole numbers and decimals up to two places</p> <p>To express tenths and hundredths as fractions and decimals</p> <p>To identify place value of whole numbers and decimals to two places and write in expanded form</p> <p>To order decimals on the number line</p> <p>To multiply and divide a decimal number up to two places by a single-digit whole number</p> <p>To solve problems involving decimals</p>
Fourth Class	Algebra	Number patterns and sequences	<p>To explore, recognise and record patterns in number, 0-9999</p> <p>To explore, extend and describe sequences</p> <p>To use patterns as an aid in the memorisation of number facts</p>
Fourth Class	Algebra	Number sentences	<p>To translate an addition , subtraction , multiplication or division number sentence with a frame into a word problem (frame not in initial position)</p> <p>To translate a one-step word problem into a number sentence</p> <p>To solve one-step number sentences</p>
Fourth Class	Shape and space	2-D shapes	<p>To identify, describe, and classify 2-D shapes: equilateral, isosceles and scalene triangle, parallelogram, rhombus, pentagon, octagon</p> <p>To explore, describe and compare the properties (sides, angles, parallel and non-parallel lines) of 2-D shapes</p>

			<p>To construct and draw 2-D shapes</p> <p>To combine, tessellate and make patterns with 2-D shapes</p> <p>To identify the use of 2-D shapes in the environment</p> <p>To solve and complete practical tasks and problems involving 2-D shapes</p>
Fourth Class	Shape and space	3-D shapes	<p>To identify, describe, and classify 3-D shapes, including cube, cuboid, cylinder, cone, sphere, triangular prism, pyramid</p> <p>To establish and appreciate that when prisms are sliced through (in the same direction) each face is equal in shape and size</p> <p>To explore and describe the relationship of 3-D shapes with constituent 2-D shapes</p> <p>To construct 3-D shapes</p> <p>To solve and complete practical tasks and problems involving 2-D and 3-D shapes</p>
Fourth Class	Shape and space	Symmetry	<p>To identify line symmetry in the environment</p> <p>To identify lines of symmetry as horizontal, vertical or diagonal</p> <p>To use understanding of line symmetry to complete missing half of a shape, picture or pattern</p>
Fourth Class	Shape and space	Lines and angles	<p>To identify, describe and classify oblique and perpendicular lines</p> <p>To draw, discuss and describe intersecting lines and their angles</p> <p>To classify angles as greater than, less than or equal to a right angle</p> <p>To solve problems involving lines and angles</p>
Fourth Class	Measures	Length	<p>To estimate, compare, measure and record lengths of a wide variety of objects using appropriate metric units and selecting suitable instruments of measurement</p> <p>To rename units of length using decimal or fraction form</p> <p>To understand, estimate and measure the perimeter of regular 2-D shapes</p> <p>To solve and complete practical tasks and problems involving the addition, subtraction, multiplication and simple division of units of length (m, cm, k)</p>
Fourth Class	Measures	Area	<p>To estimate and measure the area of regular and irregular shapes</p>
Fourth Class	Measures	Weight	<p>To estimate, compare, measure and record the weight of a variety of objects using appropriate metric units (kg, g) and selecting suitable instruments of measurement</p>

			<p>To rename units of weight in kg and g</p> <p>To rename units of weight using decimal or fraction form</p> <p>To solve and complete practical tasks and problems involving the addition, subtraction, multiplication and simple division of units of weight (kg and g)</p>
Fourth Class	Measures	Capacity	<p>To estimate, compare, measure and record capacity using appropriate metric units (l, ml) and selecting suitable instruments of measurement</p> <p>To rename units of capacity in l and ml 1500ml = 1l 500ml</p> <p>To rename units of capacity using decimal and fraction form</p> <p>To solve and complete practical tasks and problems involving the addition, subtraction, multiplication and simple division of units of capacity (l, ml)</p>
Fourth Class	Measures	Time	<p>To consolidate and develop further a sense of time passing</p> <p>To read time in one-minute intervals on analogue and digital clock (12 hour)</p> <p>To express digital time as analogue time and vice versa</p> <p>To read and interpret simple timetables</p> <p>To rename minutes as hours and hours as minutes</p> <p>To read dates from calendars and express weeks as days and vice versa</p> <p>To solve and complete practical tasks and problems involving times and dates and the addition and subtraction of hours and minutes</p>
Fourth Class	Measures	Money-Euro	<p>To rename amounts of money as euro or cents and record using e symbol and decimal point</p> <p>To solve and complete practical one-step and two step problems and tasks involving the addition, subtraction, multiplication and simple division of money</p>
Fourth Class	Data	Representing and interpreting	<p>To collect, organise and represent data using pictograms, block graphs, bar charts and bar-line graphs incorporating the scales 1:2, 1:5, 1:10 and 1:100</p> <p>To read and interpret bar-line graphs and simple pie charts</p> <p>To use data sets to solve and complete practical tasks and problems</p>
Fourth Class	Data	Chance	<p>To use vocabulary of uncertainty and chance: chance, likely, unlikely, never, definitely</p> <p>To order events in terms of likelihood of occurrence</p> <p>To identify and record outcomes of simple random processes</p>
<b>Class</b>	<b>Strand</b>	<b>Strand Unit</b>	<b>Objectives</b>

Fifth Class	Number	Place Value	To read, write and order whole numbers and decimals To identify place value in whole numbers and decimals To round whole numbers and round decimals
Fifth Class	Number	Operations	To estimate sums, differences, products and quotients of whole numbers To add and subtract whole numbers and decimals (to three decimal places) without and with a calculator To multiply a decimal (up to three places) by a whole number, without and with a calculator To divide a decimal number by a whole number, without and with a calculator
Fifth Class	Number	Fractions	To compare and order fractions and identify equivalent forms of fractions with denominators 2-12 To express improper fractions as mixed numbers and vice versa and position them on the number line To add and subtract simple fractions and simple mixed numbers to multiply a fraction by a whole number To express tenths, hundredths and thousandths in both fractional and decimal form
Fifth Class	Number	Decimals and percentages	To develop an understanding of simple percentages and relate them to fractions and decimals To compare and order fractions and decimals To solve problems involving operations with whole numbers, fractions, decimals and simple percentages
Fifth Class	Number	Number theory	To identify simple prime and composite numbers To identify square and rectangular numbers To identify factors and multiples
Fifth Class	Algebra	Directed Numbers	To identify positive and negative numbers in context
Fifth Class	Algebra	Rules and properties	To explore and discuss simple properties and rules about brackets and priority of operation To identify relationships and record verbal and simple symbolic rules for number patterns
Fifth Class	Algebra	Equations	To translate number sentences with a '?' into word problems and vice versa To solve one-step number sentences and equations
Fifth Class	Shape and space	2-D shapes	To make informal deductions about 2-D shapes and their properties To use angle and line properties to classify and describe triangles and quadrilaterals]to identify the properties of the circle To construct a circle of given radius or diameter

			<p>To tessellate combinations of 2-D shapes</p> <p>To classify 2-D shapes according to their lines of symmetry</p> <p>To use 2-D shapes and properties to solve problems</p>
Fifth Class	Shape and space	3-D shapes	<p>To identify and examine 3-D shapes and explore relationships, including tetrahedron (faces, edges and vertices)</p> <p>To draw the nets of simple 3-D shapes and construct the shapes</p>
Fifth Class	Shape and space	Lines and Angles	<p>To recognise, classify and describe angles and relate angles to shape and the environment</p> <p>To recognise angles in terms of a rotation</p> <p>To estimate, measure and construct angles in degrees</p> <p>To explore the sum of the angles in a triangle</p>
Fifth Class	Measures	Length	<p>To select and use appropriate instruments of measurement</p> <p>To estimate and measure length using appropriate metric units</p> <p>To estimate and measure the perimeter of regular and irregular shapes</p>
Fifth Class	Measures	Area	<p>To discover that the area of a rectangle is length by breadth</p> <p>To estimate and measure the area of regular and irregular 2-D shapes</p> <p>To calculate area using square centimetres and square metres</p> <p>To compare visually square metres and square centimetres</p>
Fifth Class	Measures	Weight	<p>To select and use appropriate instruments of measurement</p> <p>To estimate and measure weight using appropriate metric units</p>
Fifth Class	Measures	Capacity	<p>To select and use appropriate instruments of measurement</p> <p>To estimate and measure capacity using appropriate metric units</p>
Fifth Class	Measures	Time	<p>To read and interpret timetables and the 24-hour clock (digital and analogue)</p> <p>To interpret and convert between times in 12-hour and 24-hour format</p>
Fifth Class	Measures	Money-Euro	<p>To compare 'value for money' using unitary method</p>
Fifth Class	Data	Representing and interpreting	<p>To collect, organise and represent data using pictograms, single and multiple bar charts and simple pie charts</p> <p>To read and interpret pictograms, single and multiple bar charts, and pie charts</p> <p>To compile and use simple data sets</p> <p>To explore and calculate averages of simple data sets</p> <p>To use data sets to solve problems</p>
Fifth Class	Data	Chance	<p>To identify and list all possible outcomes of simple random processes</p> <p>To estimate the likelihood of occurrence of events</p> <p>To construct and use frequency charts and tables</p>

<b>Class</b>	<b>Strand</b>	<b>Strand Unit</b>	<b>Objectives</b>
Sixth Class	Number	Place Value	To read, write and order whole numbers and decimals To identify place value in whole numbers and decimals To round decimals
Sixth Class	Number	Operations	To estimate sums, differences, products and quotients of whole numbers To add and subtract whole numbers and decimals (to three decimal places) without and with a calculator To multiply a decimal by a decimal, without and with a calculator To divide a decimal number by a decimal, without and with a calculator
Sixth Class	Number	Fractions	To compare and order fractions and identify equivalent forms of fractions To express improper fractions as mixed numbers and vice versa and position them on the number line To add and subtract simple fractions and simple mixed numbers To multiply a fraction by a fraction To express tenths, hundredths and thousandths in both fractional and decimal form To divide a whole number by a unit fraction To understand and use simple ratios
Sixth Class	Number	Decimals and percentages	To use percentages and relate them to fractions and decimals To compare and order percentages of numbers To solve problems relating to profit and loss, discount, VAT, interest, increases, decreases
Sixth Class	Number	Number theory	To identify simple prime and composite numbers To identify and explore square numbers To explore simple square roots To identify common factors and multiples To write whole numbers in exponential form
Sixth Class	Algebra	Directed Numbers	To identify positive and negative numbers on the number line To add simple positive and negative numbers on the number line
Sixth Class	Algebra	Rules and properties	To know simple properties and rules about brackets and priority of operation To identify relationships and record symbolic rules for number patterns
Sixth Class	Algebra	Variables	To explore the concept of a variable in the context of simple patterns, tables and simple formulae and substitute values for variables

Sixth Class	Algebra	Equations	To translate word problems with a variable into number sentences To solve one-step number sentences and equations
Sixth Class	Shape and space	2-D shapes	To make informal deductions about 2-D shapes and their properties To use angle and line properties to classify and describe triangles and quadrilaterals To construct triangles from given sides or angles To identify the properties of the circle To construct a circle of given radius or diameter To tessellate combinations of 2-D shapes To classify 2-D shapes according to their lines of symmetry To plot simple co-ordinates and apply where appropriate To use 2-D shapes and properties to solve problems
Sixth Class	Shape and space	3-D shapes	To identify and examine 3-D shapes and explore relationships, including octahedron (faces, edges and vertices) To draw the nets of simple 3-D shapes and construct the shapes
Sixth Class	Shape and space	Lines and Angles	To recognise, classify and describe angles and relate angles to shape To recognise angles in terms of a rotation To estimate, measure and construct angles in degrees To explore the sum of the angles in a quadrilateral
Sixth Class	Measures	Length	To select and use appropriate instruments of measurement To rename measures of length To estimate and measure the perimeter of regular and irregular shapes To use and interpret scales on maps and plans
Sixth Class	Measures	Area	To recognise that the length of the perimeter of a rectangular shape does not determine the area of the shape To calculate the area of regular and irregular 2-D shapes To measure the surface area of specified 3-D shapes To calculate area using acres and hectares To identify the relationship between square metres and square centimetres To find the area of a room from a scale plan
Sixth Class	Measures	Weight	To select and use appropriate instruments of measurement To rename measures of weight
Sixth Class	Measures	Capacity	To select and use appropriate instruments of measurement To rename measures of capacity

			To find the volume of a cuboid experimentally
Sixth Class	Measures	Time	To explore international time zones To explore the relationship between time, distance and average speed
Sixth Class	Measures	Money-Euro	To explore 'value for money' To convert other currencies to euro and vice versa
Sixth Class	Data	Representing and interpreting	To collect, organise and represent data using pie charts and trend graphs To read and interpret trend graphs and pie charts To compile and use simple data sets To explore and calculate averages of simple data sets To use data sets to solve problems
Sixth Class	Data	Chance	To identify and list all possible outcomes of simple random processes To estimate the likelihood of occurrence of events; order on a scale from 0 to 100%, 0 to 1 To construct and use frequency charts and tables

## Success Criteria

The following will help us assess the success of the mathematics plan;

- Ongoing assessment, formal and informal, will demonstrate that pupils are acquiring an understanding of mathematical concepts and a proficiency in maths skills appropriate to their age and ability.
- We will also take into account feedback given from the school community including parents, management, students and teachers.
- Implementation of the school plan will be evident in teachers' preparation and monthly reports.
- Enhanced pupil learning will be evident through the children's positive attitude, use of mathematical language and appreciation of mathematics.

## Implementation

### Roles and Responsibilities:

- Each class teacher is responsible for the implementation of the Maths programme for his/her own class.
- The plans will be supported by continued professional development and the support of the learning support/resource teachers and the principal.
- The Board of Management will support the plan through the provision of resources.

### Timeframe:

- This school plan has been in operation since the school opened in September 2013.
- Initial monitoring of the plan will be seen in cuntas míosúil reports.

- Progress of the plan will be co-ordinated by the staff as a whole.
- Feedback on its implementation will be discussed at staff meetings as the need arises.
- An hour will be set aside each term to see how implementation is being carried out.

## **Review**

### **Roles and Responsibilities:**

The first review of this plan will be undertaken by all staff. Initial feedback from staff will be sought during the second school term of the year 2014/2015.

### **Timeframe:**

This plan will be reviewed by the end of January 2017.

## **Ratification and Communication**

This Maths plan will be available for viewing in the office as part of the school plan.

The plan was ratified by the Board of Management on:

### **Appendix A**

- **Khan Academy**: Free with differentiated online learning tasks
- **Mathletics**: Subscription based licence fee with CJ Fallon
- **Manga High**: Subscription based licence fee involved
- **Nrich Maths**: Problem Solving based tasks
- **NZ Maths**: Problem Solving based tasks
- **Maths Dictionary**: Maths Language based tasks
- **Scratch**: Coding and programming

Digital resources are available for example Maths box, resources to be shared between all classes.

### **ICT for the Wider Curriculum**

- **Clare Education Centre:** [Links by Subject Area](#)
- **Interactive Sites:** [Links by Subject Area](#)

### **Appendix B**

See curriculum skills glance cards PDST