Creagh N.S. Mathematics Plan
2013

Introductory Statement and Rationale

This Plan was formulated and drawn up, in consultation with, and with the input of, all the stake-holders in our school- Management, teaching staff parents and pupils.

Our school recognizes that Mathematics education provides our pupils with a wide range of knowledge, skills and related activities that help them to develop an understanding of both the physical world and social interactions.
The DES National Strategy for Numeracy (2012) and the consequent increased time, (Minimum of 4 hours, 10 min classes 1 to 6; 3 hours, 25 min in junior and senior infants. in total) assigned to Mathematics will be followed throughout the school.
(SEE Appendix 1)
 In guiding our aims, objectives and teaching methodology we consider the following terms important to the overall philosophy of our school in relation to Mathematics.

- Fundamental to the aims of the Mathematics Programme for our school is a realisation that the learning and development of a pupil is a partnership between parents, teachers and pupil.

- Mathematics is creative as well as functional.

- We believe that to involve the pupils actively in their learning will help to foster independent thinking and informed planning.

- The pupils and the staff should interact in a manner that demonstrates mutual respect.

- The school believes guidance is important as pupils begin to learn to take responsibility.

- It is important that all pupils experience success in their work.

- Testing helps pupils to assess their success and understand the need for targets to be set and reached.

- The School actively celebrates effort and achievement in all areas and for all pupils. There is determination to reward commitment and perseverance at all levels of ability.

- We recognise the importance of mathematics as a cross-curricular skill.

Vision and Aims

In line with the ethos of our school, cherishing all and preparing pupils to contribute to, and play a meaningful in the community is the central vision encapsulated in this plan. These aims and objectives relate directly to the aims and objectives of the Primary Mathematics Curriculum for Creagh School.

Aims:

The aims of our primary mathematics curriculum are :

1. To develop a positive attitude towards mathematics and an appreciation of both its practical and its aesthetic aspects.

2. To develop problem-solving abilities and a facility for the application of mathematics to everyday life.

3. To enable the child to understand mathematical language and to use it effectively and accurately.

4. To enable the child to acquire an understanding of mathematical concepts and processes appropriate to his/her level of development and ability.

5. To enable the child to acquire proficiency in fundamental mathematical skills and in recalling basic number facts.

6. To enable all pupils to have equal access to mathematics and to experience success in their work.

Objectives:

These objectives relate directly to the six aims of the Mathematics Programme of our school and are intended to show how the aims are actually put into practice.

- To teach mathematics in a meaningful context which allows the pupils to use their skills creatively through problem-solving and investigation;
- To provide pupils with a variety of experiences and activities within each module of study and, where possible, within each lesson;
- To encourage pupils to work to their full potential by setting appropriate targets for them and by using a reward system to recognise and celebrate achievements;
- To stimulate the pupils' curiosity and interest in order to facilitate their identification of the relationships between different aspects of mathematics;
- To encourage pupils to recall and apply their knowledge and skills in familiar and unfamiliar situations;
- To enable the pupils to follow both verbal and written instructions accurately;
- To link the pupils mathematics experience to their work in other curricular areas as appropriate;
- To expose the pupils to both prescriptive tasks and open-ended investigations as appropriate;
- To develop with the pupils a range of problem-solving strategies, eg 'RUCSAC' which the pupils can employ to overcome difficulties which bedevil this aspect of Mathematics.
- To offer pupils opportunities for individual and/or group activities.
- To encourage independence and perseverance in our pupils.
- To encourage our pupils to share their experiences with others and so enhance the quality of the learning they experience.
- To encourage pupils to develop conclusions based on evidence found within their work.

Teachers make and encourage references of how mathematics is used in society or in everyday life to enable pupils to develop an appreciation of the purpose of Maths as a subject.
The use of Maths in building things; shopping and other occasions when money transactions or currency exchange are involved; measuring time, length, weight, time, constantly highlighted.

Discussion-teacher/pupil and pupil/pupil in group work- is encouraged as part of problem solving*, investigations, and significantly when assembling and organising data.
 Pupils are encouraged to develop conclusions based on evidence found within their work. This can be linked with estimation of what an answer should be, eg getting a fraction/percentage of a number should result in a smaller number.

  The importance of mathematics as a cross-curricular skill is recognized for:
  1. Emphasizing the life skill aspect rather than just being a discreet school subject.

2. Allows for extra time when linked with, in particular, science, geography and most other curricular areas.

__Problem-solving and the language of Maths__ has been recognized as an aspect of Maths here Irish children do less well than children in other OECD countries. Consequently these aspects have been identified in our *__School Self Evaluation__* as target areas to achieve improvements. Appendices dealing with Language of Maths and Problem-solving can be found at the end of this document.

Planning for Mathematics

The following will inform teacher planning:

- The _strands_ of the programme are not isolated areas. They should be seen and taught as interrelated units in which understanding in one area is dependent on, and supportive of ideas and concepts in other strands.
- Children will use their knowledge of one area of mathematics to explore another. They may practice their knowledge of number facts when undertaking measurement activities, and geometrical concepts may be required in the presentation of data. This is called *linkage.*
- Further opportunities should be identified to *integrate* mathematical concepts and skills with other areas of the curriculum, as those indicated in the content are merely suggestions.
- There should be an appropriate *balance* between the different aspects of mathematics. While the area of number is vitally important, its treatment should not be at the expense of the other strands, and the programme should ensure *continuity and progression.*
- The *revision* of concepts and skills should be thoroughly undertaken before exploring new material.
- The exploration of mathematical concepts and ideas using a wide variety of *equipment* should precede any form of written recording in mathematics.
- Emphasis should be placed on **discussion**, child with child in groups and teacher with child. It should be an integral part of the work in each strand. **The use of concrete materials as a teaching methodology will be integral in all classes right up to sixth class.**
- Planning should consider *individual difference* in ability, attainment and learning style.
- *Assessment* both of and for learning should be seen as an integral part of the teaching and learning process. DES requirements for the reporting of standardized assessment scores will be fulfilled.
- It is important that children come to see mathematics as *practical and relevant*. Opportunities should be provided for them to construct and apply their

mathematical understanding and skills in contexts drawn from their own experiences and environments.

- # **Content**

<u>Curricular Content – Overview of Strands and Strand Units</u>

Content is arranged in two-year blocks and incorporates Strands on Number ; Algebra ; Shape & Space ; Measures and Data.   These strands are sub-divided into Strand Units as outlined in the Content - Overview.

Spanning the content are the skills that pupils in Creagh School should develop :
- Applying & problem-solving.
- Communicating and expressing
- Integrating and connecting
- Reasoning
- Implementing
- Understanding and recalling

	Infant Classes :	**First & Second**
Strands	**Strand Units**	**Strand Units**
Early mathematical activities	* Classifying * Matching * Comparing * Ordering	
Number	* Counting * Comparing and ordering * Analysis of number	* Counting and numeration * Comparing and ordering * Place value
value	Combining	* Operations
	Partitioning	Addition
	Numeration	Subtraction
		* Fractions

(Pupils count to : Junior Infants 1-10: Sen. Inf. 1-20 : I/II   1-100
 III 1-1000 :   IV 1-10000 : V/VI 1-million +)

Algebra	* Extending patterns *Copying patterns *Completing patterns	* Exploring and using patterns

Strands	Strand Units	Strand Units
Shape and space	* Spatial awareness * 3-D shapes * 2-D shapes	* Spatial awareness * 2-D shapes * 3-D shapes * Symmetry * Angles
Measures	* Length * Weight * Capacity * Time * Money	* Length * Area * Weight * Capacity * Time * Money

Data	* Recognising and
	   interpreting data
		* Representing and
		   interpreting data

Strands	**Third and Fourth** Strand Units	**Fifth and Sixth** Strand Units

Number	* Place value
	* Operations
	   Addition and subtraction
	   Multiplication
	   Division
	* Fractions
	* Decimals
		* Place
		* Operations
		   Addition and subtraction
		   Multiplication
		   Division
		* Fractions
		* Decimals and percentage
		* Number theory

Algebra	* Number patterns and sequences * Number sentences	* Directed numbers * Rules and properties * Variables * Equations
Shape and space	* 2-D shapes * 3-D shapes * Symmetry * Lines and angles	* 2-D shapes * 3-D shapes * Symmetry * Lines and angles

Measures	* Length	* Length
	* Area	* Area
	* Weight	* Weight
	* Capacity	* Capacity
	* Time	* Time
	* Money	* Money

Data	* Representing and interpreting data	* Representing and interpreting data
	* Chance	* Chance

<u>Pedagogic Principles, Approaches & Teaching Methodologies</u>

<u>The following should be read with reference to the 'Teacher Guidelines', pp 30-67</u>

- **Guided discussion** - discussion rather than just questioning will form the basis for the interaction in groups, between pupil and teacher and pupil and pupil.
- **The child is an active participant in the learning process**. Experimentation, construction and structured opportunities to engage in exploratory activities are key elements in our approach to teaching mathematics.
- **Training in discussion skills is important**. Training and discussion skills will be given and will include 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. The skills acquired by the pupils through the 'Building Bridges' Literacy programme will be utilized to compliment, and enhance the effectiveness of discussion.

- **Attention will be given to creating a safe environment** where children develop personal qualities such as politeness, perseverance, initiative, empathy, self-confidence and independence.
- **Hands-on approach throughout all classes is important.** (Junior Infants-6th Class) Children will have access to a wide range of mathematical equipment and will work

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individually, in pairs or in groups.

- **Accurate use of mathematical language and symbols is important**.

  As part of the school's Self Evaluation (Numeracy, 2013), a separate Appendix on 1.The Language of Mathematics and 2. Problem Solving in Mathematics, will be added to this document
  A common vocabulary and approach will be adopted throughout the school -

  i.e. 300 minus/take away 121
       $350 \div 5 = 350$ divided by 5

  - Colour coding of the four computational operations will be employed to improve the children's understanding of when to use.

- Formation of numbers - a common approach exists for the formation and writing of numerals - starting point, direction, finishing point etc.

  start

  i.e.   3

  finish

- Children will be given practice forming numerals in sand, feeling them on sand-paper etc. Charts showing correct method of number formation will be displayed in each classroom.
- Algorithms read from left to right.

- **The principle of estimation is important from Junior Infants - 6th. Class**.
  Infants encouraged to make a "sensible guess". Children presented with problems and several solutions and asked to select the most reasonable solution.   When estimating the following procedure is followed - estimate first; write down the estimate ; solve the problem ; compare the estimate with the actual result. Clustering and rounding numbers also used in estimating. Number patterns of 10, 100 and 1000 also used as a strategy for estimating.

- **Verbalisation and story making of mathematical problems and equations is important.** Children will be encouraged to create stories, forecast possibilities, estimate and predict outcomes.

Problem-Solving. Children will be encouraged to take risks, learn from trial and error, check & evaluate. Group and class discussion on a problem are seen as a key strategies.

Central to this will be careful analysis of the problem and the extraction of the relevant information by the pupil.

As mentioned above problem solving has been identified as an area of particular concern nationally.

Techniques used to enhance pupils problem-solving skills to include :
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- Children taught a variety of strategies and applying the same strategy to different problems and different strategies to the same problem.
- Problems structured so that all children can experience success.
- Using small numbers to simplify and then revert to the original with larger numbers.
- Use of calculators to take away computational barriers.
- Re-reading of a problem by the child, individually or in groups, encouraged.   In group work different and alternative solutions should be investigated and not just those which lead to the correct answer.
- The inclusion of "Red herrings" can encourage pupils to have a more critical approach to a problem.
- Children can invent problems for others to solve.
- Use of clue-sheets in solving a problem encouraged, RUCSAC*: (the currently the agreed school approach)*
  Read the problem a number of times
  Underline important/key information.
  Create to show what you know
  Select an approach/plan of operation
  Answer the question.
  Check your Answer

  - Using colours to identify the four different operation of computation can be helpful:
    Addition could highlighted GREEN
    Subtraction RED,
    Multiplication, BLUE
    Division, ORANGE

Types of Problem-solving exercises could also include: word problems ; practical tasks ; open-ended investigation ; puzzles ; games ; projects ; mathematical trails: and where possible, links to real life situations
In respect of problem-solving *'quality rather than quantity'* should be key

Can be helpful
Using the Environment and Cross-curricular Linkage

Enabling children to connect the use of maths in their surroundings can both make classroom maths more relevant and also provide a concrete structure for concept understanding. Shopping, Driving, Building, Measuring, Travelling, Playing games, Mapping, Cooking, Farming, Trading, etc all provide numerous opportunities for Mathematical activities. Maths trails and Display of data can be used to enhance the connections between the environment and classroom Maths.

Participation in' Maths Week', 'Science Week', 'Problem of the week/day' and a maths rich school environment can also raise the stature and importance of maths within the school community.

Calculators: The school views the use of calculators as appropriate because calculators can:

* **help in the development of an understanding of the four rules of arithmetic and their interrelationships**
* **help with problem-solving by focusing on higher-level skills**
* **give the child confidence to try more difficult mathematical tasks by removing computational barriers**
* **allow the child to explore the number system and to discover facts and relationships**
* **be used to create patterns, predict and check results and explore aspects of number structure**

Pupils in our school may use calculators to assist them in mathematical activities from Fourth to Sixth class.   Children will need to know and use number facts to check the reasonableness of answers obtained with the calculator. **Mastery of number facts will still remain a school priority.**
The school will use calculators which operate by using arithmetic logic.

Information and Communication Technology :
Classroom computers will be used as an aid and support to class teaching.   Suitable software packages will be used and will be age appropriate.   In senior classes pupils will experience databases, spreadsheets and will have supervised use of the internet to access materials and information

Textbooks: **The school views textbooks as a resource that may be availed of.** Textbooks do not dictate the content or approach of the mathematics curriculum in the school.   A variety of Textbooks may be in use and different approaches emphasised. The school places greater emphasis on investigation and activity based learning with constant reference to the school and local environment.   Worksheets and Clue-sheets compiled by the class teacher are used to explore or develop the Strand Units as appropriate.

Mental Arithmetic - Drill and questions given to all classes from Junior Infants to 6th class.

Tables: Understanding and recalling mathematical terminology and facts important.
First/Second Class : Addition & Subtraction Tables 1-10
Third-Sixth Class   :   Addition, Subtraction, Division & Multiplication Tables 1-10

Subtraction: Re-grouping used up to sixth class.

MATHEMATICAL EQUIPMENT

To support learning and teaching within the area of Mathematics the following equipment is available to teachers and pupils.

Number:

* number lines, strips, abacus and rubber stamp abacus
* magnetic board strips
* counters, beads, string, buttons, Unifix cubes, spools and sorting trays
* Dienes blocks, Cuisenaire rods
* pegboards and pegs
* number ladder
* story of 10 boards
* hundred square (with and without numbers)
* fraction, decimal, percentage walls
* numbers slabs
* number balance
* playing-cards and dominoes
* notation boards
*Numicon (particularly useful for children with learning difficulties)

Shape and space

* 2-D and 3-D shapes, geo-boards, tangrams, geo-strips
* direction compass
* set-squares, clinometer
* blackboard compass, set-squares and protractor
* 360 deg. and 180 deg. protractors
* gummed paper, paper shapes
* construction straws
* construction kits

Measures:
(standard and non-standard)

Length
* unmarked sticks, metre stick, half and quarter-metre sticks, trundle-wheel, height chart, tape measures, rulers, ribbon or string
* bamboo poles

Weight
* balance, kitchen scales and bathroom scales, weights, spring balance

Capacity
* litre, half and quarter-litre containers, varied collection of containers for comparison

Time
* clock faces and rubber stamps, clock, (analogue and digital)
* calendar and date stamps
* sequencing pictures

Money

* facsimile money, money stamps

General Mathematical Equipment

* Lego, books and games

* water or sand tray

* scissors (left and right-handed)

* magnifying glass, magnets, microscope

* rain gauge, barometer and thermometer

* Data projector/Visualiser

* television and video programmes

* computer programs

* calculators

* selection of dice

All of the above equipment was purchased and is in place.

ASSESSMENT, EVALUATION and RECORD KEEPING

Assessment in Mathematics is a continuous process and is in keeping with the Schools General Assessment Policy and the current reporting requirements of the DES
The emphasis in assessment in our school is two-fold:

1. **Assessment for learning** which may be used to inform ongoing teaching of mathematics.
2. **Assessment of learning** will focus on what the pupils know, what they can do and how they can do it.   Key assessment areas will focus on the pupils - conceptual knowledge and understanding; problem-solving ability; computational proficiency ; recall skills ; mastery of specific content areas ; the ability to communicate and express mathematical ideas and processes and the pupils general attitude towards mathematics and their ability to connect mathematics to real life situations.
3. **Pupil self-evaluation of learning**
   Pupils will be encouraged to become more aware of their own learning by assessing how confident they feel about their understanding and mastery of a particular strand or strand unit.

   A useful strategy might be the red/amber/green response to the teachers question on how well they understand any item/concept.
   Combined with this, the use of a pre-instruction statements of 'WHAT WE ARE LEARNING TO' (WALT) and WHAT I AM LOOKING FOR (WILF) will help pupils focus better on what it is they are learning.
   This also informs future teaching approaches and strategies.

The school uses a variety of <u>approaches</u> in assessing pupils in Mathematics. These approaches include :

- **Teacher Observation** - is continuous and generally informal   i.e. correcting and tracking homework and school work ; discussing problems; asking children to self-evaluate at the end of task or lesson.

- **School/Teacher Designed Tasks and Tests** - will include written, oral, mental, tables, problem solving, estimation, project work, construction.
  These tests will be administered both on an individual basis and also to pupils

working in groups.   Test results and observations are recorded in order to establish pupils strengths and weaknesses.

- **Screening Tests** :   The school screens all pupils from Junior Infants - Sixth Class. The tests used are Quest/Sigma T/ Drumcondra I-VI   .
Test results are used to give appropriate remediation to children who are experiencing difficulties and to provide extension work for pupils of higher ability.

- **Diagnostic Tests** - are given to pupils who show weakness in the screening tests, and work schemes are prepared which are specifically aimed at the skills which need improving.   Both testing and work schemes are the joint responsibility of our Learning Support Teacher and Class Teacher.

- **Standardised Tests** - The school uses a Norm-Reference Test (Sigma T and/ or Drumcondra Primary Mathematics Test).   It is administered by the class teacher during the Spring Term to pupils from First Class - Sixth Class.

- Pupil Profiles: Compilation of results from various tests administered during the year.   At end of school year they are used to form an overall picture of pupils progress and this is then entered in to the end of year report which is sent to parents/ guardians.

- All new pupils to the school are screened not later than one month after their enrolment.

- The language used in written tests will be such that it does not militate against the performance of a child with a reading difficulty or children whose first language is not English. Individual teachers, in consultation with the Principal, may grant an exemption where a standardized test would not be appropriate for such children.

Records of Standardised and diagnostic tests will be assembled and stored centrally, in hard copy and also, for ease of access, on the Aladdin electronic storage system.
These records will begin at pupil entry to the school and be kept and added to until the pupil transfers to Second Level.
As per DES Guidelines, returns of Standardized Tests for 2/4/6th classes will be forwarded to the Department at the appointed dates.

Learning Support and Children with Different Needs

Methods of Identification

- Teacher observation

- Concerns expressed by parents and or other child professionals

- Results of class based testing

- Results of Standardised and Diagnostic Tests.

- Educational Psychologists' Assessments

Intervention

- **Initally will follow the staged approach of the current DES Guidelines.**

- Children given special tuition on an individual or small group basis. Use of concrete materials to re-force concepts important.

- Individual Educational Programmes for each child, using the currently agreed school Template, will be drawn up in consultation with class and support teachers, parents, and, where appropriate other agencies.

- Partnership with parents to monitor and assist progress i.e. Maths homework, sample lessons, methodology explained. Parents' attention will be drawn to the NCCA 'Tips for Parents'

- Screening and diagnostic testing by our Learning Support Teacher. Procedure as per our Learning Support and Resource Plan.

- Pupils progress is monitored by Class Teacher/Principal/Learning Support Teacher.

- Intervention by outside agencies and professionals if deemed necessary by Class Teacher/Principal/Learning support teacher/ Parents.

- Pupil progress is tracked from year to year .

Maths Language

The significance of language and the ability to communicate are essential elements of teaching and learning in all curricular areas. Mathematics has a unique language with its own symbols, vocabulary, grammar, semantics and literature.
When children use mathematical language it should be accurate. This is necessary for the correct interpretation of mathematical symbols and accurate reading of algorithms and word problems.

To integrate with SSE target to improve mathematical problem solving, greater emphasis will be placed on (1) the use of the correct terminology and (2) mathematical discussion and oracy.

1st Class

Number & Algebra	Measure	Shape & Space	Data
Numeral to 100 and back	Measure Compare	Line Straight	Pictogram
Ordinals to tenth	Length/metre	Curved Corner	Block
Units tens Whole	Weight/Kilo	Side	Row
Fraction – half of	Time, o'clock	Shape. 2D, 3D	Column
Subtract Takeaway Number sentence Record	½ past Birthday	Square Triangle Rectangle Circle	
Add, plus Altogether	Days of Week Months, date	Cube	
Difference More/less than	Past/Future/Present Balance	Sphere Cuboid Cone	
The same as	The same as		
Tell a number story	Heavier (st)		
Pattern	Lighter (st) Longer (st) Shorter (st) Height Cent/Euro Change Full/Empty		

Second Class

Number & Algebra	Measure	Shape & Space	Data

Units, Tens, Hundreds, Altogether, Plus, Sum Difference, Minus, Subtract, Take away, More/Less Than Same, Equal, Digit, Place Value Rename Round, Estimate Record	Metric Units Mete, cm, Kilogram Litre Balcne Scale Days, Date, Month, Seasons, Calendar, Minute, Hour (hands) Digital	Line Straight Curved Diagonal Vertical Horizontal Line of Symmetry	Chart Table Pictogram Block graph
Numbers to 100 Ordinal to twentieth	Name Coins, Notes : Change: Cost : Value	Cube Cuboid Sphere Pyramid Cone	
Estimate/Guess Number sentences to Written story Abacus Notation Board	O'Clock ½, ¼ past, to Minute Hours Days/Months Seasons	Square Rectangle Triangle Circle Oval	
Tell a number story Odd/Even			

Third Class

Number & Algebra	Measure	Shape & Space	Data
Place Value to 3 digits and one decimal place Units/Tens/Hundreds	Metric Units, Metre, Cm Gram, Kilogram Litre, Millitre	Regular/Irregular	Pictogram Graph Chart Block
Sum, Addition, Plus	Non Standard	Square	Bar
Difference, Subtract, More/Less than/Equal	Square Units	Rectangle Triangle	Chance
Multiply	Longer/st Shorter/st	Hexagon	Possible Might
Division		Circle	Certain Likely
Express algorithms of above	Heavier Lighter Balances	Oval Tessalate	Not Sure
Tenths/Decimal pt	Capacity	Edges, Faces Corners Cylinder, Cone	
Zero	Clock Analogue Digital	Sphere, Prism, Pyramid	
Fraction			
Decimal Fraction		Geoboard Geostrip Stencil	
Remainder			
Pattern/Sequence		Vertical Horizontal	
Multiple		Clockwise, Anti	
Equivalent		Right Angle	
Estimate/Guess			

Fourth Class

Number & Algebra	Measure	Shape & Space	Data
Place value to 4 digits	Standard Units	Describe/Classify Common 2D Shapes	Likely Unlikely Definite
Sum, Difference Product	Instruments Ruler, Tape Trundle Wheel	Equilateral Isoscules	Chance
Commutative Associative Distributive Quotient	CM^2, M^2 Balance, Scales	Scalene Traiangles Rhombus Parallelogram	Record/Tally Impossible
Factor Multiple	Rename, Units Equivalent	Set Square	
Estimate	Analogue	3D Shapes Pyramids	
Numerator Denominator	Digital Timetables Schedules	Prisms	
Decimal Place Value to Hundredths		Perpendicular Oblique	

Fifth Class

Number & Algebra	Measure	Shape & Space	Data

Digits, Numbers	All Standard	Express properties of	Block
Prime	Units of	2, 3D shapes	Line
Composite	Length	Faces, Edges,	Chart
Square	Weight	Vertices	Graph
Triangular	Capacity		Pie Chart
Rectangular	Time	Straight, Reflex	
		angles	Frequency
	All Instruments of		Chance
	Measurement	Rotation	Probability
Factor			Outcome
Multiple		Compas	
Whole Number	Area		Statistic
Mixed Number	Perimeter	Name regular	Tally
Improper Fraction		Quadrilaterals	Representative
Simplify	Square and Cubic		Interpretation
	Units	Properties of	
Percentage		Circle	Possible
	Milli, Centi, Kilo	Triangle	Likelihood
Directed Numbers		Radius	
Positive, Negative	24 Hour Clock	Diameter	
	Analogue	Circumference	
Estimation	Digital		
		Protractor	
Express Problem			
Solving strategies			
Explain use of			
brackets			
Average			

6th Class

Number & Algebra	Measure	Shape & Space	Data
Numbers	All Standard Units of measurement in Length	Cardinal Points Polygons to Duodecagon	Representing Interpreting Trend Graph Pie Chart
7 Digits			Random
Square Root	Weight Capacity	All properties of Circle	
Simple Compound Interest	Area Time	Angles Quodrilaterals Polygons	
Discount Profit Loss, VAT	Acre Hectare	Rotational Symmetry	
Algorithim	Tonne		
Natural	Cubic Meter		

The following mathematical terms are baseline for the different class levels.

Junior/Senior Infants

Number/Algebra		Shape/space	Measures	Data
Count to 10		Over	Long/short(er)	Enough
Before		Under	Wide	More
After		Up	/narrow(est)	Less
More than		Down		As many as
Less than		Beside	Heavy/light	Picture
Same as		In	+comparitives	Pictogram
First/tenth		Above	Balance	Block
Between		Below	Weigh	column
		Right		
Coins to 5c/10c		Left	Full/empty	
How much		Thick/thin	Nearly,	
Change		Wide/narrow	less/more than	
Cost		Straight/curved	as much as	
Price		Square	day/night	
Too much/little		Rectangle	morning/evening	
		Circle	early/late	
		Triangle	days of week	
		Oval	lunchtime	
		Edge	bedtime	
		Corner	birthday	
		Face	yesterday	
		Flat	tomorrow	
			significant	
			dates	
first		**second**	**classes**	
Number/Algebra		Measures	Shape/space /angles	Data

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Estimate	Measure, Compare,	Name appropriate 2	Graph
Express	Length	and 3 dimensional	Chart
Units, tens,	Weight, weigh	shapes	Block
Whole, fraction	Capacity	Line	Pictogram
Difference between,	Area	Direction	Chance
More/less than	Time	Vertical	Un/likely
Equal/unequal	Minute	Horizontal	Certain
subtract,	Hour	Symmetry	Definite
take away	Day	Tessellate	Im/possible
Digit	Week	Geoboard	Likelihood
Place value	Fortnight	Geostrip	Tally
Number sentence	Month		Random
Rename	Year		outcome
fraction	Past		Scale
Product	Future		
Record	Recent		
Construct	Money		
Round	Currency		
Analogue, digital	Euro		
Abacus	Cent		
Notation board	Change		
Ordinal numbers to tenth	Amount		
	Third/Fourth classes		

Number/algebra		Measures	Shape/Space	Data
Units, tens, Hundreds, thousands Zero Decimal numbers Tenths hundredths To 4 digit nos Estimate, Sum Difference Multiplication Division Product Commutative Distributive Associative Quotient Remainder Fraction Equivalent Pattern sequence factor multiple		Length, width, height, Meter Cm Km Ruler, tape, trundle wheel Kg, g, Weighing scales Capacity/volume Litre/ ml Time sequence Daily, weekly, monthly, annual Digital/analogue Time lines Time schedules Timetables, Calendar Money terms Change, **Fifth/sixth classes**	Regular Irregular Describe 2 and 3 D shapes and their properties as listed for 3/4 classes Tessellation Describe their occurance and use in the Environment. Equilateral, isosceles, Scalene triangles Acute, obtuse, Right angles. Line of symmetry Vertical, horizontal, diagonal, oblique lines	Pictogram, Graphs Charts Block, bar, line, pie Tally Chance Possible, might, Likely Certain, Definite, Impossible Unlikely Not sure Random
Number/algebra		**Measures**	**Shape and space**	**Data**

Numbers to 7 digits Prime, composite, Square, rectangular, triangular, Simple square root Factor, Multiple, Whole, mixed nos Improper fraction Simplify, Percentage Simple/compound interest discount Round to Directed numbers Positive/negative Estimation and expression of problem solving strategies.	All standard units of measurement in length, weight, capacity, area. Time-lines Timetables BC/AD 24hour time Centuary Millenium Reflex angles Line, point, rotational symmetry	As above plus Straight, reflex angles Equilateral, isosceles, scalene triangles Rotation, Protractor Set square Compass Cardinal points Polygons to duodecagon All regular quodrilaterals Properties of circle, Octahedron, Tetrahedron, Faces, edges,	Representing Interpreting Block, line, trend, pie Chart/graph Frequency Random Possible outcomes

Parental Involvement/ Home/School Links

Guidelines for Parents

- Junior Infants induction day….. Parents informed about emphasis on language and practical activities in Maths.   Advice and information given about activities which can be done at home – encouraging the correct use of mathematical language e.g. long/short : wide/narrow ; full/empty ; over/under ; beside, behind, in front , between ; less

than, more than, the same as ; etc.   by giving their child plenty of opportunities to play and explore with sand, water, bricks, blocks, lego, construction sets, shape and stencil sets, etc. ; by reinforcing the concept of number with rhyme, song and stories.

- Parents to be informed at beginning of first class about method of subtraction i.e. re-grouping.

- Parents to be informed that calculators are used from 4th class upwards.

- Children record maths homework in their homework journal.

Success Criteria

Maintaining, and in the area of problem solving, improving on overall current scores on standardized tests (Drumcondra Revised Maths Test) will be considered a successful outcome+

Implementation

Primary responsibility for Implementation will be the individual class teachers' with the support of Special education team and with the co-operation of parents.

Review

The policy will be reviewed in the context of the ongoing School self Evaluation programme.
This will be carried out, initially by the teaching staff, and in consultation with Parents and the Board of Management.
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Timeframes:

Ratification by Board of Management:_____

School Self Evaluation: 2013—2015.

Overall Review: 2015-2016