Section 4b: Matamaitic

This is a working document that is being developed by the School Community.
It is constantly reviewed at Staff Meetings, on Curriculum in-service and SDP days
It is the process by which we educate our children in St. Paul's N.S.

Contents:

Mathematics

Introductory Statement and Rationale

(a) Introductory Statement

This plan was formulated over the school years 2005-2007 during curriculum days, school planning days and staff meetings, by the whole staff, individual class groups representatives, principal and school development-planning post holder, Muirne Bennis.

(b) Rationale

To form a core programme of objectives to be achieved at each class level
To ensure continuity of teaching methodologies throughout the school
To benefit teaching and learning in our school
To conform to principles of learning outlined in the Primary School Curriculum
To review the existing plan for mathematics

Vision and Aims

(a) Vision

Our school cherishes all pupils equally and, to aid them in achieving their true potential we endeavour to provide a comprehensive mathematical programme for all children in our school.

(b) Aims

We endorse the aims of the Primary School Curriculum for mathematics

- To develop a positive attitude towards mathematics and an appreciation of both its practical and its aesthetic aspects
- To develop problem-solving abilities and a facility for the application of mathematics to everyday life
- To enable the child to use mathematical language effectively and accurately
- To enable the child to acquire an understanding of mathematical concepts and processes to his/her appropriate level of development and ability
- To enable the child to acquire proficiency in fundamental mathematical skills and in recalling basic number facts

This Mathematics plan will be addressed under the following headings

Curriculum planning

1. **Strands and strand units**
2. **Approaches and methodologies**
3. **Assessment and record keeping/Special Needs**
4. **Equality of participation and access**

Organisational planning

5. **Timetable**
6. **Homework**
7. **Resources and ICT**
8. **Individual teachers' planning and reporting**
9. **Staff development**
10. **Parental involvement - home school links**
11. **Community links**

1. Strands and strand units

- Teachers will familiarise themselves with the curriculum for their class level and the core programme for St Paul's ND
- In order to ensure that this familiarity is maintained if teachers change classes or if new teachers join the staff, we will provide each teacher with a pack including the core curricula for every subject.

2. Approaches and methodologies

Agreed steps to a maths lesson:

- Tables
- Mental Maths
  - not tables
  - to incorporate a revision of work to date/previous years
  - teaching of mental math strategies
- Core topic
- Problem Solving

Maths Lessons – points to note:

- Use scientific calculator in senior classes
- Children must use step by step approach. Move away from just marking answer and give marks for the steps used. *(Just like comprehension strategies – solving maths problems needs to be modelled by teacher; then guided practice; then individual practice – gradual release of control)*
- Teach language of concepts – make children aware of what they are learning: e.g. unitary method; long multiplication methods etc

2.1 General

- All children will be provided with the opportunity to access the full range (all strands) of the mathematics curriculum. Teachers will differentiate the curriculum to suit the needs of the individual children in their classroom.
- We endeavour to ensure that there is less emphasis and reliance on textbooks and workbooks and more on active learning strategies through providing adequate amounts of concrete materials either in individual classes or in the resource room (under the supervision of A Geary, post holder). Teachers are also encouraged to interact with each other in discussing methodologies with their colleagues.
- Textbooks in use are in line with content objectives for the class level.
- Children from fourth to sixth class use calculators
- We endeavour to ensure that
  - the number limits are being adhered to
  - formulae are being 'discovered' by children rather than being taught by rote
  - there is an emphasis on simple fraction families in the senior classes
  - pupils are collecting real data in other areas of the curriculum and using it to represent their findings i.e. using data from other subjects such as geography, history or science to find the answer to a question, and/or gathering data to answer their own questions such as 'Do more/less children walk to school this year than five years ago?' 'What are the three favourite vegetables eaten by children in our class?'
  - estimation skills are developed and refined with the emphasis on using estimation in all areas of mathematicsand that there is consensus among the staff in relation to the use of estimation strategies in number
- We endeavour to raise the profile of mathematics as a subject to be enjoyed by all children by using the environment and making mathematics a practical, child-centred subject.

2.2 Talk and discussion

Guided discussion and discussion skills

- The initial introduction of every mathematics topic is centred around mathematical language and talk and discussion is encouraged between pupil and teacher, and pupil and pupil.
- Talk and discussion can also be an integral part of other stages of the mathematics lesson including explanations, deductions etc.
- Opportunities are given to pupils to explain how they got the answer to a problem, discuss alternative ways of approaching a problem and/or give oral descriptions of group solutions

Scaffolding

- The teacher actively models the language to be used, particularly when talking through the problem-solving process

Integration

- Mathematical processes will be used in other subjects where appropriate and useful *e.g. gathering data in history and geography, measuring temperatures in science, sorting and classifying in science*

Linkage

- Opportunities for linkage are used where appropriate

Mathematical language in context

- We have an agreed emphasis on the language of mathematics and at our staff meeting in June 2007 we created a list for each class level of terminology and language – please see core programme below
- Children's own ideas and environment are also being used as a basis for reinforcing mathematical language, *e.g. you are taller than he is, teacher's table is longer/wider than yours*
- At our staff meeting in June 2008 we also have identified common approaches to the language used in
    - Addition – total, sum of, add, and …
    - Subtraction – minus, subtraction, take-away, difference, less than …
    - Multiplication – times, product of, multiply, groups of …
    - Division – divide, share, split, groups of …
    - Equals – same as, equals
    - Discussed at staff meeting June 2007 (see core programme below)

Number facts

- Number facts (tables) are taught as in read from the table book and using the language agreed on and detailed below
- Children are aware of the commutative properties of multiplication tables and of their relationship with division
- We teach subtraction and division tables separately or as part of addition and multiplication initially and then associate them

2.3 Active learning and guided discovery

- Agreed strategies for teaching of Maths (language and number operations) are listed below in the core programme
    - Addition & Subtraction of Fractions – families of fractions, fraction walls as a starting point.
    - Addition & Subtraction of time – renaming minutes into hours and minutes (addition); renaming hours and minutes as minutes (subtraction)
- Children are encouraged to develop personal benchmarks, particularly in the measures strand, *e.g. noting their height in relation to a metre, the width of their finger as close to a centimetre,*
- The following mathematical games are in use in mathematics throughout the school. *e.g. dice, cards, dominoes, spinner games, games devised by the children themselves, computer software*

2.4 Collaborative and co-operative learning

- We endeavour to ensure that children learn the skills needed to work *as* a group rather than just *in* a group by creating specific roles within the group and changing these roles on a regular basis, by selecting the composition of the groups.
- Every class is encouraged to usea variety of organisational styles as appropriate to the learning needs or the concept being taught *e.g. pair work, group work and whole class work*

2.5 Problem-solving

- Children are encouraged to create stories about number facts to foster understanding of problem solving.
- Children are encouraged to use their own ideas as a context for problem-solving, *e.g. my mammy bought a 2 litre bottle of orange for the party yesterday – was it cheaper than two 1 litre bottles?*
- Agreed approaches to problem solving and perhaps using strategies such as RAVECCC* and ROSE* to support children's problem-solving strategies need to be decided *RAVECCC – Read, Attend to key words, Visualise, Estimate, Choose numbers, Calculate, Check
  *ROSE – Read, Organise, Solve, Evaluate
  (All of these are just variations and teachers can easily construct their own to suit their circumstances.)
- In making problem-solving more accessible and realistic for children teachers are using checkable answers and/or a calculator for larger numbers as part of their programme
- We are providing opportunities for all children, Infants to Sixth class andincluding those with special needs,to have the opportunity to experience problem-solving activities by differentiating in number of ways including *e.g. by giving oral problems; by having them use objects to solve the problem; by using smaller numbers; by using items in the environment, e.g. how many beads can I hold in one hand - a little, a lot, more than teacher*

2.6 Using the environment

- The following elements of the environment are being used in our school mathematical programme: classroom, school building, yard, field, locality
- Mathematical trails have being developed within and outside the school building and can be seen in individual teacher's yearly plans.

- Children are given the opportunities to present/display their mathematical work in the class/corridor/school and on the web site

2.7 Skills through content

- Skills are being actively developed through the content and this can be seen other areas of the curriculum including science (Applying and problem solving) in Geography (Communicating and expressing), Mathematics in the Environment (Integrating and connecting), Music (Reasoning,)
- The principal encourages the use of mental mathematics throughout the school by encouraging staff to engage the children both orally and mentally before progressing to new concepts.

2.8 Presentation of work

- Teachers encourage all children to present their work in a clear and concise manner outlining their understanding of mathematical concepts and problems. This is done by numerical work in copies, graphs, diagrams, using ICT and displays of concrete work.
- Ruling of copies for computation:
  - Senior Infants & 1st Clas: 1 line down centre of page
  - 1st-6th Cass: Margin on left side of page
  - 2nd-6th: Double line down middle of page
  - Rough work: On right (if needed)
-

1.9 Intiaitves

Maths Week:

- Our school participates in Maths week every and activities include:
  - Maths trails
  - Maths eyes
  - Classes to diplay maths board
  - Maths Games

Team Teaching:

- Team teaching was trialled during the school year 2017-18 for 3rd& 4th classes and covered the topics of Factions and Time. Groups were of mixed ability. There were four stations in each class ober the week. Pre and post testing and post testing showed that it was a success in each class and it was decieded to continue with it again for the coming school year – aiming that each 4th class would participate for one week in October/November and each 3rd class for one week in January/February

Maths Differentiation:

- A variety of approaches were practised during the year 2009-10 including class grouping and streaming. A long discussion took place regarding the streaming issue. The following policy was formed:

Maths Differentiation Strategies to become practice from September 2010 are:

1. Primary Strategy – grouping within class
2. Learning Support
   a. Withdrawal
   b. In-class support
3. Team teaching
4. Grouping of all children within the same class level (e.g. all children in all 4th class) but only under the following circumstances
   a. All teachers must be content to follow the procedure.
   b. Classes can only be split after the standardised test (which normally takes place in early November)
   c. This must be reviewed at the beginning, middle and end of each term.
   d. This is not to be a year long practice and children are to remain with their own class for some topics/time during the year.

Teachers involved are to meet with each other at the beginning and end of each half- term to decide on which strategy they are to implement for the following half-term.

3.Assessment and record keeping/Special Needs

- In mathematics in St Paul's all teachers assess and keep records of all children's work on an on-going basis through
    - Self-asssessment
    - Conferencing
    - Portfolio Assesment (including e-portfolios)
    - Concept Mapping
    - Questioning
    - Teacher Observation
    - Teacher-designed tasks and tests
    - Standardised tests
    - Diagnostic tests (mainly resource/learning-support)
- Children with special needs do attend learning-support if their scores necessitate intervention as outlined in our learning-support policy.
- Each teacher in learning support has access to various mathematical tests, aids and resources to provide the necessary remediation in mathematics
- There are many programmes available in the multi-media room through ICT to support children with special needs in Mathematics.
- Children with exceptional are provided with a differentiated programme through teacher intervention, additional worksheet, workbooks and activities, and ICT to support their work

4. Equality of participation and access

- All children of all ages, backgrounds, abilities/disabilities have access to all services, facilities and amenities within the school environment to develop their mathematical skills and their understanding of mathematical concepts.

6. Timetable

- Each mainstream teacher in the school teaches mathematics each day according to the time allocated in the Primary school curriculum pg 67-70

7. Homework

- Mathematics homework is given by each teacher in accordance with the school's homework policy. The homework may include active learning approaches (e.g. gathering information), textbook work, and mental arithmetic (e.g. tables). Teachers in resource and learning-support take account of the fact that children will not receive two sets of homework.

8. Resources

- A teacher (A Geary, post holder) is responsible for equipment, textbooks, supplementary materials, calculators etc
- Many of these are centrally stored in the resource press (located upstairs in Phase 1). An inventory of all equipment is kept, all equipment used should be signed out by individual teachers, and anything broken or lost is replaced.
- Other sets of equipment, textbooks etc are kept in classrooms
- Materials, equipment, games, textbooks, supplementary books are selected following discussion by the appropriate teachers on suitability and availability

ICT

- Each teacher/class has access to a multi-media room in our school. This room is supervised and supported by principal and post holder (Mr Pat Kennedy). A list of software/videos/DVDs including mathematical material is given to each teacher and updated on a yearly basis.

9. Individual teachers' planning and reporting

- Each teacher is responsible for long and short-term planning.
- At the end of each month each teacher completes a cuntas miosuil where all mathematics taught to the children is recorded

10. Staff development

- Mathematics is an integral part of the school curriculum and is therefore discussed regularly at staff meetings.
- Any courses available in mathematics throughout the year are displayed in the staff room. Post holder (A Geary) provides information on an ongoing basis for teacher development and upskilling of staff.

11. Parental involvement – home school links

- Parents are made aware of the content of the mathematics programme and the approaches/methodologies used in this school through:
  - the junior-infant information night
  - assessment
  - parent-teacher meeting e.g. expectations in relation to layout and presentation of work
  - Learning number facts at all levels - tables
  - Early mathematical activities - sorting, classifying …
- Parents can support the teaching and learning of mathematics in our school by helping children with their mathematics homework and tables.

12. Community links

- Children are sometimes provided the opportunity to visit LIT/UL for mathematics days organised by these colleges.
- Children from 1st-6th have the opportunity to visit the Credit Union each Tuesday in school.

Success criteria

- **We will know that the plan has been implemented if**
  - Teachers' preparation based on this plan
  - Procedures outlined in this plan consistently followed
- **We will know that the plan has achieved its aims from**
  - Feedback from teachers/parents/pupils/community
  - Inspectors' suggestions/report
  - Feedback from second level schools
  - Cuntas Míosúil

Implementation

(a) Roles and Responsibilities

The plan be supported, developed and implemented by all teaching staff on an ongoing basis. It will be monitored on an ongoing basis and evaluated at the end of each year.

(b) Timeframe

This plan will be implemented over the school year 2007-2008.

Review

(a) Roles and Responsibilities

The plan will be reviewed by

- Teachers
- Pupils
- Parents
- Post holders/plan co-ordinator

- *This plan was discussed at the staff meeting on February 10th 2006 – element discussed: differentiation*
- *This plan was discussed at the staff meeting on June 15th 2007 – element discussed: language*

- *This plan was ratified by the staff at the staff meeting on June 15th 2007*
- *This plan was updated and entered into the school plan on 18th June 2007.*
- *This plan will be communicated to staff at staff meetings and by distributing copies of the school plan*
- *This policy was reviewed by all staff on September 22nd 2009* –ensure adoption of whole school decisions
- *This plan was discussed at our staff meeting on January 29th 2010* – notification of new equipment; reminder to sign out equipment.
- *This plan was discussed at our staff meeting on May 28th 2010* – reminder of review during year; differentiation strategies decided upon.
- *This plan was reviewed by all staff during Croke Park Hours on October 3rd and November 7th 2011* – refresher of whole-school approach
- *This plan was discussed at our staff meeting on March 21st 2011* – reminder of steps to a maths lesson
- *This plan was discussed by all staff during Croke Park Hours on February 22nd 2012*

- *This policy was reviewed by a review committee on March 26th* – steps to a lesson (see points to note in plan)
- *This plan was discussed at our staff meeting on 21st May 2012* – Drumcondra Analysis; online maths programmes
- *This plan was discussed at our staff meeting 17th Septemer 2012* – importance of Mental Maths (noted by inspector after incidental visit*)*
- *This plan was discussed at our staff meeting 16th October 2012* – Maths week ideas
- *This plan was discussed at our staff meeting on 14th January 2013* – review of evaluations we have undertaken as an introduction to the official SSE process
- *This plan was discussed at our staff meeting on Novermber 25th 2013* – feedback from Maths Month as opposed to Maths week
- *This plan was discussed by all staff during Croke Park Hours on May 26th 2014* – SIP – selection of targets
- *This plan was discussed by all staff during Croke Park Hours on October 13th 2014* –review of whole school decisions
- *This plan was discussed by all staff during Croke Park Hours on November 17th 2014* – SSE: resources and resource folders
- *This plan was discussed by all staff during Croke Park Hours on February 23rd 2015* – SSE:
- *This policy was discussed at the staff meeting on 18th May 2015* – SSE Targets identified for the school year 2015-16
- *This plan was discussed by all staff during over 3 Croke Park Hours during school year 2015/16* – SSE: Teahing of Time; Teaching of Fractions; Re-familiarisation of whole-school decisions
- *This school plan was updated after staff meeting June 11th 2018* – to include reference to the team-teaching trial undertaken and a decision to continue with this project the following year.
- *This policy was discussed at the staff meeting on 15th October 2018* – SSE Targets identified for the school year 2018/19
- *This plan was discussed at our staff meeting on November 19th 2018* –feedback from Maths week; reminder of learning centres
- *This plan was discussed by all staff during Croke Park Hours on 21st January 2019* – SSE: STEM
- *This plan was discussed at our staff meeting on January 28th 2019* –update on current status of SIP targets for school year 2018-19 and plan to complete same
- *This plan was discussed by all staff during Croke Park Hours on February 28th 2019* – SSE: STEM

This plan is reviewed annually by class groups refamiliarising themselves with plan's content
This plan is reviewed on a whole-school basis annually under SSE & SIP
Date for next whole-school review: 2019/20 – SIP targets

MATHS EQUIPMENT CENTRALLY STORED:

(All equipment to be signed out)

Phase 1. JuniorSchool.

- Maths Equipment.
- Balances
- Measuring jugs
- Measuring cubes
- Playing cards
- Dice with 2 Books – "Games and Activities with Dice"
- Bingo
- Mental Arithmetic Box
- Number Lines with pegs.
- Abacus
- Linking Base Ten Material
- Links
- Unifix cubes
- Teaching clocks
- Solid Shapes
- Relational Geosolids
- Tangrams

Phase 2 SeniorSchool.

- Maths Equipment.
- Dominoes – 2 sets
- Dominoes – Fractions/Percentages
- Dominoes – Fractions/Decimals
- Dominoes – Angles
- Dominoes – Shape
- Fraction – Rubber stamps.
- Measuring Balances – 2.
- Links with Activity Book.
- Dice – Computation with Book.
- Connecting Links with Book.
- Ease Abacus – 2.
- Set Squares
- Protractor.
- Geo strips.
- Magnetic strips for White Board
    - Decimals/Percentages
    - Fraction Set.
- Fraction/Decimal Wall for Magnetic Board – 3 sets
- Construction Rods with Workcards
- Solid Shapes – 4 sets
- Relational Solids
- Trundle Wheel
- Linking Base Ten Material
- Large Black board Compass?
- Tangrams

MISCELLANEOUS EQUIPMENT CENTRALLY STORED WITH MATHS EQUIPMENT

(All equipment to be signed out)

Phase 1. Books.

1. Fun Things to make and do at Christmas.
2. Christmas – A Language Theme for the Early Years.
3. Teach Editing – Lower
4. Phonic Cross Patches 1.
5. Phonic Cross Patches 11.
6. Language at Home Book 1.
7. Language at Home Book 11.
8. Fraction Activities for Lower Primary.
9. Classroom Savers.

Buntus Sport Folder

Education Videos.

1. From Source to Sea.
2. Great wonders of the world x 2.
3. Chiara ; Silent Night
4. Connections 2.
5. Ovava.
6. The Tackle
7. Nature Video
8. Powerful Stuff
9. Look at my hands: the Adlt.
10. The stolen river
11. Jesus of Nazareth Part 111, 1V.
12. First Holy Communion May 15th 2004
13. First Holy Communion May 21st 2005 10a.m.
14. First Holy Communion May 15th 2004
15. Living in Austria
16. National Geographic – Animal N.A.B Lions of the African Night
17. Face of the Earth
18. BotharnanGabhar
19. Farming a way of life
20. Juvenile Diabetes
21. Keen food safe
22. The story of tea
23. Living in Denmark
24. The Living Planet Part 2.
25. Child Safe Be safe on the farm.
26. Living Planet Part 1.
27. Mother Theresa in Ireland.
28. Percussion Plus

Other Videos

1. Rosie and Jim's BouncingCastles.
2. Tweenies it's messy time.
3. Thomas the tank engine and friends.

4. Kids Vids 2000
5. The Muppet Christmas Carol.
6. Teletubbies Ready Steady Go.
7. The Adventures of Elmo in Grouchland.
8. Bear in the Big Blue House
9. Fun Song Factory Old Macs Farm
10. Rosie and Jim Duck Gets lost
11. Ariel with upon a starfish
12. Teletubbies Big Hug.
13. Fireman Sam's Big Video.
14. Timbles Smelly Jelly
15. The Sly Fox and Red Hen
16. Sleeping Beauty
17. Treasure Attic
18. Mary B. Robin hood and the sword of the stone.
19. Barney around the world
20. Barney songs
21. Barney's Good Clean Fun.
22. Barney's Oh Brother She's my sister.
23. Barney's Fun Along.
24. Herman the Mouse the Cartoon Show.
25. Wallace and Gromit the wrong trousers.
26. Sesame Street.
27. Peter Pan
28. Winnie the Pooh – Seasons of giving.
29. Felix the Cat
30. Children's Cartoon Fun.
31. Thomas the Tank engine Chases. Races & Runaways
32. Sponge Buddies
33. Peter Pan
34. The Simpsons Collection
35. Mighty Mouse Casts and Robbers
36. Pinocchio.
37. Fun Song Factor 7
38. Very Merry Christmas Songs
39. The Stone Cold Fire.
40. Irish Legends for children.
41. Jack and the Beanstalk.

MATAMAITIC – CORE PROGRAMME

Maths language across the Strands

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

Agreed language for Number Operations

	+	Core	Other applicable Language									
			add	go on	count on	sum of	more than	total	increase	together	addition	get x more
Juniors		and										
Seniors				✓			✓					
1st			✓		✓		✓	✓		✓	✓	✓
2nd			✓	✓	✓	✓	✓	✓		✓	✓	✓
3rd		and, plus	✓			✓	✓	✓	✓	✓	✓	✓
4th			✓			✓	✓	✓	✓	✓	✓	✓
5th			✓			✓	✓	✓	✓	✓		
6th			✓			✓	✓	✓	✓	✓		

	-	Core	Other applicable Language											
			take away	minus	subtract	less	find the difference	gave away	spent x amount	less than	fewer	decrease	go back	what has to be added to?
Juniors														
Seniors		take away, go back	✓										✓	
1st			✓		✓			✓	✓				✓	✓
2nd			✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
3rd		take away, subtract	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
4th			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
5th			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
6th			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓

	x	Core	Other applicable Language									
			times	groups of	multiply	by	factors	each	produce	number squares	repeated addition	rows of
3rd		6x7:	✓		✓	✓	✓	✓	✓	✓		
4th			✓		✓	✓	✓	✓	✓	✓		
5th		six sevens	✓		✓	✓	✓	✓	✓	✓	✓	✓
6th		6 multiplied by 7	✓		✓	✓	✓	✓	✓	✓	✓	✓

	÷	Core	Other applicable Language											
			divided by	divided into	how many in each group?	shared	over	dividend	divisor	quotient	repeated subtraction	split	give	distribute
3rd		14 ÷ 7:	✓		✓	✓					✓	✓	✓	✓
4th			✓		✓	✓					✓	✓	✓	✓
5th		14 divided by 7	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6th			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Other Agreed Methods:

= ‘is the same as’ (juniors); ‘is the same as’/’equals’ (seniors-6th)

0 zero

- Vertex of a 3-D shape is called a ‘corner’ up to 4th Class
- The algebraic frame (3+5=☐) is read as 3 plus 5 equals ‘something’ up to 5th Class; and 3 plus 5 equals ‘frame’ for 5th& 6th
- Place value: units (not called ones)
- Fractions – equal parts
- Subtraction: 67
  - 34 begin at the top on the units side (i.e. 7 take away/subtract 4)

- Multiplication: 28
  x 5 begin at the bottom on the units side (i.e. 5 eights)

St. Paul's NS – Maths Programme – Naíonáin Shóisearacha

Strand	Strand Unit	Activities
EMA	Matching and Classifying on the basis of one attribute	*Similar Objects*
		Colour
		Size
		Texture
		Set and complement of a set
		3-D shape (roll/can't roll)
		2-D shape
		Colour
	Matching and Classifying on the basis of two attributes	*As above*
	Comparing and Ordering	
	Length	
	Matching	*Equivalent sets*
		Equivalent sets (using one-to-one correspondence)
		Non-equivalent sets (using 1-to-1 correspondence)
NUMBER	Counting the number of objects in a set	*0-10*
	Comparing and Ordering	
	Analysis of Number	*Developing understanding of conservation of 0-5*
		Subitising
	Formation of numerals	*0-5*
	Combining	
	Partitioning	
ALGEBRA	Extend patterns in colour, shape and size	
SHAPE AND SPACE	Spatial Awareness	
	3-D Shapes	*Roll/Can't Roll*
		Tessellation (covering surfaces)
	2-D Shapes	*Square, circle, triangle, rectangle*
MEASURES	Length	
	Weight	
	Time	*Parts of Day/Night*
		Sequencing
	Capacity	
	Money	*Recognition of 1c, 2c, 5c*
		Shopping
DATA	Sort and Classify sets of objects by one criterion	
	Match sets, equal and unequal	
	Recognise and interpret a set of simple mathematical data using real objects, models and pictures	

St. Paul's NS – Maths Programme – Naíonáin Shinsearacha

Strand	Strand Unit	Activities
NUMBER	Counting	*1-20*
	Analysis of Number	*Numeration: 0-10*
		Components of numbers 1-10
		Combining up to 10; Symbols: + =
		Partitioning sets of up to 10
	Comparing and Ordering	*Equivalent and non-equivalent sets*
		Ordinal Number
ALGEBRA	Extend patterns in colour, shape and size	
SHAPE AND SPACE	Spatial Awareness	*left, right*
	3-D Shapes	*Cube, cuboid, cylinder, sphere*
	2-D Shapes	*Square, circle, triangle, rectangle*
MEASURES	Length	*longer than, taller than, wider than*
	Weight	
	Time	*Sequence Events*
		Four Seasons
		Hours, Days
	Capacity	
	Money	*Recognition of coins up to 20c*
		Use coins up to 10c
DATA	Sort and Classify sets of objects by one and two criteria	
	Match sets, equal and unequal	
	Recognise and interpret data in two rows or columns using real objects, models and pictures	

St. Paul's NS – Maths Programme – Rang I

Strand	Strand Unit	Activities
NUMBER	Addition	*Combining sets to 20*
		Two and three addends to 99 without and with renaming
		Commutative and associative properties of addition
		Develop recall strategies for addition facts
		Estimate sums be adding tens
		Number sentences
		Problem solving
	Subtraction	*Subtraction as deducting 0-20*
		Subtraction as difference 0-20
		Subtraction as complementing 0-20
		Subtraction as taking away 0-20
		Subtract numbers without renaming within 99
		Develop recall strategies for subtraction facts
		Estimate differences by subtracting tens
		Number sentences
		Problem solving
	Counting and Numeration	*Read, write and order numerals to 100*
		Use number words
		Estimate the number of objects in a set 0-20
	Comparing and Ordering	*Ordinal numbers 1st to 10th*
	Place Value	*Group and count in tens and units using lollipop sticks, abacus, notation board to 99*
		Number words
	Fractions	*Identify shapes divided in to two equal parts*
		Identify half of sets to 20
		Solve problems
ALGEBRA	Extending and Using Pattern	*Patterns in 2's, 5's, 10s*
		Odd and even numbers
		Patterns using 100 square
SHAPE AND SPACE	2-D Shapes	*Sort, describe, compare and name 2-D shapes*
		Combine and partition 2-D shapes
	3-D shapes	*Describe, compare and name*
	Spatial Awareness	
	Problem Solving	*Making a pattern; organised list*
DATA	Representing and Interpreting Data	*Pictograms*
		Sort and classify objects by 2 criteria
	Problem Solving	*Logical reasoning*
		Use or make a table
MEASURES	Money	*Coins to the value of 50c*
		Problem solving
	Weight	*Non-standard units*
		Kilogramme
		Solve practical tasks and problems
	Length	*Non-standard units*
		Solve practical tasks and problems
	Time	*Sequences based on days of week*
		Calendar
		Read time in hours and half-hours on 12-hour clock
		Vocabulary of time to sequence events
	Capacity	*Non-standard units*
		Litre
		Solve practical tasks and problems

St. Paul's NS – Maths Programme – Rang II

Strand	Strand Unit	Activities
NUMBER	Addition	*Combining and Partitioning sets to 20*
		Two and three addends up to 20
		Commutative and associative properties of addition
		Recall strategies for addition facts to 20
		Add numbers without and with renaming within 99
		Problem solving
		Solve 2-step problems involving addition
		Estimate sum by rounding tens
		Repeated addition in 2s, 3s, 4s, 5s, 6s and 10s
	Subtraction	*Subtraction as deduction, difference and complementing 0-20*
		Subtraction without and with renaming within 99
		Problem solving
		Solve 2-step problems involving subtraction
		Estimate differences by rounding tens
	Counting and Numeration	*Estimate the number of objects in a set 0-20*
		Estimate using rounding strategies
	Comparing and Ordering	*Comparing equivalent and non-equivalent sets*
		Use symbols <, >, =
	Place Value	*Up to 199*
		Rename numbers as tens and units
	Fractions	*½ of shapes, sets to 20*
		¼ of shapes, sets to 20
		Identify relationship between ½ and ¼
ALGEBRA	Extending and Using Pattern	*Recognise patterns and predict subsequent numbers*
		Patterns in addition facts
		Patterns using hundred square
		Patterns in 2s, 3s, 4s, 5s, 6s and 10s
SHAPE AND SPACE	2-D Shapes	*Sort, describe and name shapes*
		Combine and partition shapes
	3-D shapes	*Describe, compare and name shapes*
		Explore relationships with 2-D shapes
	Angles	*Explore and recognise angles in the environment*
	Symmetry	*Line symmetry in shapes and environment*
	Problem Solving	*Use of look for a pattern*
DATA	Representing and Interpreting Data	*Pictograms*
		Block Graphs
	Problem Solving	*Logical Reasoning*
		Tables
MEASURES	Money	*Recognise, exchange and use coins to the value of €2*
		Calculate change up to €1
	Weight	*Non-standard units*
		Kilogramme, ½ kilogramme, ¼ kilogramme
	Length	*Non-standard units*
		Metre, ½ metre, ¼ metre
		Centimetre
	Time	*Sequence events (vocabulary)*
		Record time using simple devices
		Read time in hours, ½ hours, and ¼ hours on analogue and digital clock
	Capacity	*Non-standard units*
		litre, ½ litre and ¼ litre
	Area	*Compare and measure surface area*
		Non-standard units

St. Paul's NS – Maths Programme – Rang III

Strand	Strand Unit	Activities
Number	Place Value	*Up to 999*
		Read, write and order 3-digit numbers
		Round whole numbers to the nearest 10, 100
	Addition	*Add numbers to 999 without and with renaming*
		Develop mental strategies for addition
	Subtraction	*Subtract numbers without and with renaming within 999*
	Multiplication	*Repeated addition in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s*
		Develop multiplication facts within 100
		Zero, commutative and distributive properties
		Multiply a 1-digit or 2-digit number by 0-10
		Solve practical tasks and problems
	Division	*Division as sharing*
		Repeated subtraction in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s without and with remainders
		Division facts within 100
		Divide a 1-digit or 2-digit number by a 1-digit number without and with remainders
		Solve practical tasks and problems
	Fractions	*Identify fractions and equivalent forms of fractions with denominators of 2, 4, 8 and 10*
		Compare and order fractions and position on the number line
		Calculate a fraction of a set
		Develop relationship between fractions and division
		Calculate a unit fraction of a number
		Calculate a number given a unit fraction of a number
		Solve practical tasks and problems
	Decimals	*Identify tenths and express in decimal form*
		Order decimals on the number line
Algebra	Extending and Using Pattern	*Patterns 0-999*
		Explore, extend and describe sequence
		Use patterns as an aid for memorisation of number facts
		Translate an addition or subtraction number sentence with a frame into a word problem
		Solve one-step problems
Shape and Space	2-D Shapes	*Identify, describe and classify*
		Explore, describe and compare the properties of 2-D shapes
		Combine, tessellate and make patterns with 2-D shapes
		Identify use in environment
		Solve practical tasks and problems
	3-D shapes	*Identify, describe and classify*
		Explore, describe and compare the properties of 3-D shapes

		Explore and describe the relationship with 2-D shapes
		Construct 3-D shapes
		Solve practical tasks and problems involving 2-D and 3-D shapes
	Lines and Angles	*Vertical, horizontal and parallel*
		Recognise an angle in terms of a rotation
		Classify angles as greater than, less than or equal to a right angle
DATA	Representing and Interpreting Data	*Read and interpret pictograms, block graphs and bar charts*
		Represent data using pictograms, block graphs and bar charts
	Problem Solving	*Use data sets to solve problems*
MEASURES	Money	*Rename amounts of euro or cent and record using symbols and decimal points*
		Solve one-step problems involving addition and subtraction
	Weight	*Using appropriate metric units*
		Solve practical tasks and problems involving addition and subtraction
	Length	*Using appropriate metric units*
		Rename units of length in m and cm
		Solve practical tasks and problems
	Time	*Consolidate and develop a sense of time passing*
		Read time in 5-minute intervals on analogue and digital clocks (12-hour)
		Record time in analogue and digital forms
		Read and interpret simple timetables
		Rename hours as hours and minutes
		Read dates from calendar and express weeks as days and vice versa
	Capacity	*Using appropriate metric units*
		Solve practical tasks and problems
	Area	*Regular and irregular shapes*
	Chance	*Use vocabulary of uncertainty of chance*
		Order events in terms of likelihood of occurrence
		Identify and record outcomes of simple random processes

St. Paul's NS – Maths Programme – Rang IV

Strand	Strand Unit	Activities
NUMBER	Place Value	*Up to 9999*
		Read, write and order 4-digit numbers
		Round whole numbers to the nearest 10, 100 or 1000
		Use calculator to check estimates
	Addition	*Add numbers to 9999 without and with renaming*
	Subtraction	*Subtract numbers without and with renaming within 9999*
	Multiplication	*Multiplication as repeated addition of groups*
		Develop multiplication facts within 100
		Properties of multiplication
		Multiply a 2-digit or 3-digit number by a 1-digit or 2-digit number
		Develop mental strategies for multiplication
		Solve practical tasks and problems
	Division	*Division as sharing and as repeated subtraction of groups without and with remainders*
		Repeated subtraction in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s without and with remainders
		Division facts within 100
		Divide a 2-digit or 3-digit number by a 1-digit number without and with remainders
		Solve practical tasks and problems
	Fractions	*Identify fractions and equivalent forms of fractions with denominators of 3, 6, 9, 12, 5 and 10*
		Compare and order fractions and position on the number line
		Calculate a fraction of a set
		Calculate a number given a multiple fraction of the number
		Solve practical tasks and problems
	Decimals	*Express tenths and hundredths as fractions and decimals*
		Identify place value of whole numbers and decimals to 2 places and write in expanded form
		Order decimals on the number line
		Add and subtract whole numbers and decimals up to 2 places
		Multiply and divide a decimal number up to two places by a 1-digit whole number
		Solve problems involving decimals
ALGEBRA	Extending and Using Pattern	*Patterns 0-9999*
		Explore, extend and describe sequences
		Use patterns as an aid for memorisation of number facts
		Translate an addition, subtraction, multiplication or division number sentence with a frame into a word problem
		Translate a one-step word problem into a number sentence
		Solve one-step problems
SHAPE AND SPACE	2-D Shapes	*Identify, describe and classify*
		Explore, describe and compare the properties of 2-D shapes
		Construct and draw 2-D shapes
		Identify use in environment

		Solve practical tasks and problems
	3-D shapes	*Identify, describe and classify*
		Properties of prisms
		Explore and describe the relationship of 3-D shapes with constituent 2-D shapes
		Construct 3-D shapes
		Solve practical tasks and problems
	Lines and Angles	*Oblique and perpendicular lines*
		Draw, discuss and describe intersecting lines and their angles
		Classify angles as greater than, less than or equal to a right angle
DATA	Representing and Interpreting Data	*Read and interpret bar-line charts and simple pie-charts*
		Represent data using pictograms, block graphs, bar charts and bar-line charts
	Problem Solving	*Use data sets to solve problems*
MEASURES	Money	*Rename amounts of euro or cent and record using symbols and decimal points*
		Solve one-step and two-step problems
	Weight	*Using appropriate metric units*
		Rename units of weight using decimal or fraction form
		Solve practical tasks and problems
	Length	*Using appropriate metric units*
		Rename units of length in decimal or fraction form
		Perimeter of regular 2-D shapes
		Solve practical tasks and problems
	Time	*Consolidate and develop a sense of time passing*
		Read time in 1-minute intervals on analogue and digital clocks (12-hour)
		Express digital time as analogue time and vice-versa
		Read and interpret simple timetables
		Rename hours as hours and minutes
	Symmetry	*Identify line symmetry in the environment*
		Identify lines of symmetry as horizontal, vertical or diagonal
		Use understanding of line symmetry to complete missing half of a shape, picture or pattern
	Capacity	*Using appropriate metric units*
		Rename units of capacity using decimal or fraction form
		Solve practical tasks and problems
	Area	*Regular and irregular shapes*
	Chance	*Use vocabulary of uncertainty of chance*
		Order events in terms of likelihood of occurrence
		Identify and record outcomes of simple random processes

St. Paul's NS – Maths Programme – Rang V

Strand	Strand Unit	Activities
NUMBER	Place Value	*Read, write and order whole numbers*
		Identify place value in whole numbers
		Round whole numbers
		Use calculator to check estimates
	Addition and Subtraction	*Add and subtract whole numbers without and with a calculator*
	Multiplication	*Multiply a whole number or a decimal (up to 3 places) by a whole number without and with a calculator*
	Division	*Divide a 3-digit number by a 2-digit number without and with a calculator*
		Divide a decimal by a whole number without and with a calculator
	Fractions	*Compare and order fractions and identify equivalent fractions with denominators of 2-12*
		Express improper fractions as mixed numbers and vice versa and position them on the number line
		Add and subtract simple fractions and simple mixed numbers
		Multiply a fraction by a whole number
		Express tenths, hundredths and thousandths in both fractional and decimal form
	Decimals	*Express tenths as fractions and decimals*
		Identify place value of whole numbers and decimals to 2 places and write in expanded form
		Order decimals on the number line
		Develop relationship between fractions and decimals
		Compare and order fractions and decimals
		Solve problems involving operations with whole numbers, fractions and decimals
	Percentages	*Explore the relationship between fractions and percentages*
		Compare and order fractions and percentages
	Fractions, Decimals and Percentages	*Explore the relationship between fractions, decimals and percentages*
		Compare and order fractions, decimals and percentages
		Solve problems involving operations with whole numbers, fractions, decimals and simple percentages
	Number Theory	*Simple prime and composite number*
		Square and rectangular numbers
		Factors and multiples
ALGEBRA	Equations	*Translate number sentences with a frame into word problems and vice versa*
		Solve one-step number sentences and equations
	Directed Numbers	*Identify positive and negative numbers in context*
	Rules and Properties	*Brackets and priority of operation*

SHAPE AND SPACE	2-D Shapes	*Make informal deductions about shapes and their properties*
		Use angle and line properties to classify and describe triangles and quadrilaterals
		Tessellate combinations of 2-D shapes
		Use 2-D shapes and properties to solve problems
		Identify the properties of the circle
		Construct a circle of a given radius
	3-D shapes	*Identify and examine 3-D shapes and explore relationships including tetrahedron (faces, edges and vertices)*
		Draw nets from simple 3-D shapes and construct them
	Lines and Angles	*Recognise, classify and describe angles and relate angles to shape and the environment*
		Recognise angles in terms of a rotation
		Estimate, measure and construct angles in degrees
		Explore the sum of the angles in a triangle
DATA	Representing and Interpreting Data	*Read and interpret pictograms, single and multiple bar charts and simple pie charts*
		Represent data using pictograms, single and multiple bar charts and pie charts
		Compile and use simple data sets
	Problem Solving	*Use data sets to solve problems*
	Chance	*Identify and list all possible outcomes of simple random processes*
		Estimate the likelihood of occurrence of events
		Construct and use frequency charts and tables
MEASURES	Money	*Compare value for money using unitary method*
	Weight	*Select and use appropriate instruments of measurement*
		Estimate and measure weight using appropriate metric units
	Length	*Select and use appropriate instruments of measurement*
		Estimate and measure length using appropriate metric units
		Perimeter of regular 2-D shapes
		Solve practical tasks and problems
	Time	*Read and interpret the 24-hour clock*
		Read and interpret timetables
		Interpret and convert between times in 12-hour and 24-hour format
	Capacity	*Select and use appropriate instruments of measurement*
		Estimate and measure capacity
		Solve practical tasks and problems
	Area	*Discover the area of a rectangle*
		Regular and irregular 2-D shapes
		Calculate using square cm and square m

St. Paul's NS – Maths Programme – Rang VI

Strand	Strand Unit	Activities
NUMBER	Place Value	*Read, write and order whole numbers*
		Identify place value in whole numbers
		Round whole numbers
		Use calculator to check estimates
	Addition and Subtraction	*Add and subtract whole numbers without and with a calculator*
	Multiplication	*Multiply a decimal by a whole number without and with a calculator*
		Multiply a decimal by a decimal without and with a calculator
	Division	*Divide a 4-digit number by a 2-digit number without and with a calculator*
		Divide a decimal by a whole number
		Divide a decimal by a decimal without and with a calculator
	Fractions	*Compare and order fractions and identify equivalent fractions as mixed numbers and vice versa and position them on the number line*
		Add and subtract simple fractions and simple mixed numbers
		Multiply a fraction by a fraction
		Express tenths, hundredths and thousandths in fractional form
		Divide a whole number by a unit fraction
		Simple ratios
	Decimals	*Identify place value in decimals*
		Relate decimals to fractions
		Estimate sums and differences of decimals
		Add and subtract decimals to three places
	Fractions, Decimals and Percentages	*Use percentages and relate them to fractions and decimals*
		Compare an order percentages of numbers
		Solve problems involving percentages, profit and loss, increases/decreases
	Number Theory	*Simple prime and composite number*
		Square numbers
		Simple square roots
		Common factors and multiples
		Write whole numbers in exponential form
ALGEBRA	Equations	*Translate word problems with a variable into number sentences*
		Solve one-step number sentences and equations
	Directed Numbers	*Identify positive and negative numbers on the number line*
		Add simple positive and negative numbers on the number line
	Rules and Properties	*Simple properties and rules about brackets and priority of operation*
		Identify relationships and record symbolic rules for number patterns
	Variables	*Explore the concept of a variable in the context of simple patterns, tables and simple formulae and substitute values for variables*
SHAPE AND	2-D Shapes	*Make deductions about shapes and their properties*

SPACE		*Use angle and line properties to classify and describe triangles and quadrilaterals*
		Construct triangles from given sides or angles
		Tessellate combinations of 2-D shapes
		Classify 2-D shapes according to their lines of symmetry
		Plot simple co-ordinates and apply where appropriate
		Use 2-D shapes and properties to solve problems
		Identify the properties of the circle
		Construct a circle of a given radius or diameter
		Calculate the area of a circle by counting squares
	3-D shapes	*Identify and examine 3-D shapes and explore relationships*
		Draw nets from simple 3-D shapes and construct them
	Lines and Angles	*Recognise, classify and describe angles and relate angles to shape*
		Recognise angles in terms of a rotation
		Estimate, measure and construct angles in degrees
DATA	Representing and Interpreting Data	*Read and interpret trend graphs and pie charts*
		Represent data using trend graphs and pie charts
		Compile and use simple data sets to solve problems
		Explore and calculate averages of data sets
	Problem Solving	*Use data sets to solve problems*
	Chance	*Identify and list all possible outcomes of simple random processes*
		Estimate the likelihood of occurrence of events
		Construct and use frequency charts and tables
MEASURES	Money	*Explore value for money*
		Convert currencies to euro and vice versa
		Solve problems relating to VAT and interest
	Weight	*Select and use appropriate instruments of measurement*
		Rename measures of weight
	Length	*Select and use appropriate instruments of measurement*
		Rename measures of length
		Perimeter of regular 2-D shapes
		Use and interpret scales on maps and plans
	Time	*Explore the relationship between time, distance and average speed*
		Explore international time zones
	Capacity	*Select and use appropriate instruments of measurement*
		Rename measures of capacity
		Find the volume of a cuboid
	Area	*Explore the relationship between area and perimeter*
		Regular and irregular shapes
		Surface area of 3-D shapes
		Calculate area using acres and hectares
		Identify relationship between square metres and square centimetres
		Find area using a scale plan

OUR AREAS OF CONCERN AND SUGGESTED SOLUTIONS:

5 Vowels of Maths

- All classes to display the symbols with vocabulary in their classrooms - 'altogether' to be added to the senior infant addition vowel chart
- Start working from both sides of the equals from junior infants upwards
- ~ to symbolise approximately equal to

Problem Solving

- All classes to use RAVECCC with language adapted to suit their level.
  - Read
  - Attend to key words
  - Visualise
  - Estimate
  - Choose Numbers
  - Calculate
  - Check
    - Introduce and step between R and A – Use smaller numbers
    - Underline the actual question
- Oral maths to become part of the daily lesson
- One problem-a-day/a-week
- Websites: www.dadworksheets.com
  www.mathstories.com

Short Division

- Language: 210 ÷ 7
  1. 210 divided by 7
  2. 7 into 210 (written both ways: 7 ⟌210 and 7)210
  3. 210 over 7 – every fraction means divide $\frac{210}{7}$
  4. 210 shared equally between 2
  5. How many times can you take 7 out of 210? How many times can you put 7 into 210?
  6. How many bundles/groups of 7 in 210?

3rd & 4th

5th &

Multiplication

```
      8 6
    X 4 2
    -----
    1 7 2
  + 3 4 4 0
  -------
  3 6 1 2
```

- Start at the bottom at the units side
- Keep multiplication sign away from the margin
- Write one digit per box – ensure units are in a straight line
- Shade in '0' to avoid confusion if a second 0 appears
- Ensure plus sign is written
- When adding start at the top on the units side.
- Note where 'carried' number is recorded:
  - 2 x 6 = 12 (the 1 is between the 4 and 2)
  - 4 x 6 = 24 (the 2 is between the 1 and 7)
  - 4 + 7 = 11 (the 1 is between the 4 and 4)
  - Write the 10s first (i.e. the number that is carried)

Subtraction

- A letter to be handed out to parents to ensure the same format is used at home.

```
   t u
   4 2
 - 1 8
```

- Start at the top on the units side
- 2 take away 8; I cannot do
- Cross out 4 it becomes 3 tens and 12 units

  $^{3}4\ ^{1}2$

2nd - 4th

$^{4}\cancel{5}\ ^{9}\cancel{0}\ ^{9}\cancel{0}\ ^{9}\cancel{0}\ ^{1}7$ *(one continuous line through the 5000)*

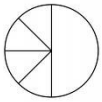
```
 - 4 0 0 0 9
```

- Bring over the 1 first
- Cross out the 5000, take 1 away from it and it becomes 4999
- Lots of practice

5th & 6th

Fractions

- Use concrete materials from 1st to 6th and for longer
- Every class should have certain materials
  - Fractions Walls
  - Pizza Slices
  - Bars of Chocolate
  - Pancakes
- Slow down the jump from moving from fractions of a shape to fractions of a set and use concrete materials.
- Link fractions to multiplication:
  - 3 x 4 = 12
  - 4 x 3 = 12
  - ⅓ of 12 = 4
  - ¼ of 12 = 3
- 5/8 of 40 – use unitary method:
  - 8/8 = 40
  - 1/8 = ?
  - 5/8 = ?
- 5/8 of a number is 40, what is the number?
  - 5/8 = 40
  - 1/8 = *equal*
  - 8/8 = ?



Draw pie chart similar to this showing all 8 segments; shade in 5 and explain that this is to 40. What is one equal to? What is 8 equal to?

Place Value:

- One digit per box
- Plenty of practice at crossing the 10s and 100s (renaming)
- Always put place value notation at the top of every sum i.e. th h t u (and so on as soon as they are introduced)
- Transition/notation boards to be used from 1st-6th; decimal point gets one box of its own. (make our own boards and leave out the ones in the book)

Time/Money

- To be done constantly throughout the year
- Use concrete materials
- Shopping needs plenty of practice
- Estimation
- Add/Take away

CONCERNS FROM WSE AND SUGGESTED SOLUTIONS

- Create a maths learning environment
    - Maths Vowels Displayed
    - Word Wall
    - Maths Table
    - Other ideas on handout in each folder
- Specific needs of pupils not evident in planning – our short-term differentiation to be more specific to the needs of the children
- A more varied use of the methodologies to be considered
    - Talk and Discussion
    - Active Learning
    - Guided Discussion
    - Collaborative Learning (Think/Pair/Share)
    - Problem Solving
    - Use of the Environment
- Overreliance on textbooks
    - Perhaps link similar topics together
    - Once the children have the concept move on – no need to do all the questions; undone questions can be used as revision
- Analysis of Maths Assessment Limited
    - Look at where children went down – not just scores
    - Informal assessment – watch children completing the sums and look at where they are going wrong
- No Early Intervention Programme in Infants
    - We did have an early intervention programme of 2 days numeracy; 2 days literacy but don't have enough personnel to continue this
- No learning support given to children prior to 2nd class
    - This has been addressed
    - Drumcondra early screening in numeracy is now used in Senior Infants to identify children for support from first class
- Pupil self-evaluation and constructive feedback not evident in assessment
    - Traffic Light systems is used in many classes

WHOLE-SCHOOL DECISIONS

Tables

- Multiplication
    - Read them left to right i.e.
        - 3 x 4 → three fours are
        - 4 x 4 → four fours are
        - 5 x 4 → five fours are
- All tables to be done in all classes every day (i.e. addition and subtraction table still to be done up to 6th)

Oral and Mental Maths

- To be done at the start of every lesson – 5 minutes
    - Brain Teasers
    - Vary questions
    - Vary topics
    - Question on topics not yet covered but covered the previous year
- Books for teachers

- Each teacher to think of 2 question for each strand and collate them at each class level - use Croke Park Hour

Developing Estimation Strategies

- Front End for money
- Rounding Off (from 1st up)
- Special Numbers (from 1st up)
    - 1st Class – doubles; then near doubles to 1
    - 2nd Class – near doubles to 1 and 2
    - 3rd Class – near doubles to 1, 2 and 3

Use of Calculator

- From 4th Class
- Type of calculator
- When use
    - Checking Answers
    - Oral/mental maths
    - Repeated Subtraction (for long division)

Homework

- How many sums to be given per night to practice concept:
    - 3 for senior infants
    - No more than 6 from 1st to 6th
- *This refers to sums that need written answers and involve working out. It does not refer to tables, mental maths or sums with short answers/one-step answers.*

Ruling of copies for computation:

- Senior Infants & 1st Clas: 1 line down centre of page
- 1st-6th Cass: Margin on left side of page
- 2nd-6th: Double line down middle of page
- Rough work: On right (if needed)

- 1st-6th Class:
    - Title work with topic and date
    - Each sum to start 2 boxes in from margin
    - Leave a space after each sum
    - Line after each group of sums
- Remind children not to rule entire copy on 1st day

Best Practice

- Each child has a bag of items needed for maths lesson (e.g. 1st class showed bag with number line, hundred square, hand for measuring, fraction wall etc)...infants will have materials given out as needed
- Whiteboards/Scribble boards for answering mental maths
- Notelets – ask children a question, they jot down answer; collected immediately – allows teacher insight into who knows concept and who doesn't

Games

Problem Solving Bookmark

Step 1: Read the Problem
Step 2: Re-read the Problem
Step 3: Underline the Question
Step 4: Box the Key Words ⇒ (Vowels of Maths)
Step 5: Squiggle the Units
Step 6: Check the Facts ✓
Step 7: Solve

Other bookmarks include:

1) RAVECCC 2) CUBES 3) ROSE

Above bookmark is the recommended one

Importance of the Decimal Point

Adding Decimals

- One digit one box
- Leave the decimal point have a box of its own
-

Ex:																			
		U	.	$\frac{1}{10}$	$\frac{1}{100}$		T	U		U	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{100}$		← Notation Board			
		0	.	0	9	+	1	0	+	2	.	9	7	5					
			T	U	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{100}$					Write in order starting with the biggest						
			1	0	.	0	0	0											
				2	.	9	7	5											
		+		0	.	0	9												
			1	3	.	0	6	5											
		Ans	=	1	3	0	6	5											

Subtracting Decimals

- One digit one box
- Leave the decimal point have a box of its own

Ex:																			
		U	.	$\frac{1}{10}$	$\frac{1}{100}$		U	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{100}$					← Notation Board			
		9	.	0	9	-	4	.	3	2	1								
				U	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{100}$											
				$^{8}\cancel{9}$	.	$^{1}0$	$^{8}\cancel{9}$	$^{1}0$											
			-	4	.	3	2	1											
				4	.	7	6	9											
			Ans	=	4 ●	7	6	9											

Multiplying Decimals

Note where decimal point is ⇒ **on the line**

Ex 1 :			5	• 9	6	8		x		5	8								
			Decimal					x	Whole Number										
			5	• 9	6	8	*					Leave decimal point in when writing up							
		x	~~7~~	~~5~~	5~~6~~	8													
		4_4	$7_{\cancel{3}}$	7_4	4	4													
	+	2_1	9_1	8_1	4	0	0					Highlight the zero							
		3	4	6 •	1	4	4												
												Cross off numbers after adding on							
		Count the Decimals in the Q Count the Decimals in the Ans Same in Both																	
	Ans	3	4	6 •	1	4	4												

Note where decimal point is ⇒ **on the line**

Ex 2:			9	6 •	5		x		4 •	9									
			Decimal				x		Decimal										
				9	6 •	5	*		←One Decimal Point										
			x	~~5~~	4_4 •	9			←One Decimal Point										
			$8_{\cancel{2}}$	$6_{\cancel{2}}$	8	5													
	+	3_1	8_1	6	0	0			Highlight Zero										
		4	7	2 •	8	5			←Therefore Two Decimal Points										

Dividing Decimals

Ex 1: Dividing Decimal by a Whole Number																		

Note where decimal point is ⇒ **on the line**

						8	2	• 8	÷	2	3							
						0	3	• 6							R.	W.		
					3	8	$^{8}2$	• 8							2	3		
					-	6	9	↓						x		4		
						1	3	8					F.	E.	9	2		
					-	1	3	8										
								0							2	3		
														x		3		
													F.	E.	6	9		
											E.	E.	6	x	3	=	1	8
															2	3		
														x		6		
														1.	3	8		

One Decimal Point in Q
⇒ One Decimal Point in Ans

Ex 2: Dividing Decimal by Decimal

9.761 ÷ 0.43 (Divisor)

		9.761															
		0.43				x		100		=		976.1					
												43					

0.43 → 9.761 (x100)

Divisor can't have decimal point.
Therefore count out in question, then rewrite.

Rewrite

				0	2	2.	7										
		43		9	$^{9}7$	6.	1							43			
			-	8	6	↓							x		2		
				$^{0}\cancel{1}$	$^{1}1$	6					F.	E.		8	6		
			-		8	6											
					3	0	1					7	x	3	=	2	1
				-	3	0	1										
							0							43			
													x		7		
											E.	E.	3	0	1		

Note where decimal point is ⇒ **on the line**