**Maths Plan**

**Scoil Cholmcille Junior,**

**Ballybrack**

**Roll No: 19641T**

**Introductory Statement**

This plan was drafted by the staff of Scoil Cholmcille J.N.S in the school year 2012/2013. It involved focused discussion by all teaching staff using the PDST prompts and template. The Plan was discussed with parents at a meeting in June 2013 and at this meeting the parents were invited to discuss the Plan. The Plan was ratified by the Board of Management in September

**Rationale**

This is an updated version of our previous maths plan. Following detailed discussions, it was amended to respond to the present needs of our school. The plan is drawn up in accordance with the Mathematics curriculum and sets out our approach to the teaching and learning of numeracy in our school. It will form the basis of teachers long and short term planning and will also inform new or temporary teachers of the approaches and methodologies used in our school. This amended plan incorporates the implementation of the extra hours that are to be given to numeracy. During our review process the staff engaged in a S.W.O.T. analysis which enabled us to build on the strengths and identify the weaknesses of numeracy in our school.

The strengths identified from the S.W.O.T analysis include the quantity and range of mathematical resources available in the school which supports activity based learning. Ready Set Go Maths is the model of practical activity based learning used by some teachers and is being gradually extended to all infant classes. Maths for Fun and Maths Recovery which targets children with specific needs, were seen as positive strategies available within the school. Flexible collaborative teaching and learning support based inside and outside the classroom as well as committed, talented teachers who are willing to up-skill and try new methods, is facilitating effective teaching and learning in Mathematic.

This Maths plan addresses the weaknesses identified from the S.W.O.T analysis with particular emphasis on making Maths a relevant subject to life that can be reinforced in everyday activities.

Teachers are concerned about that parents are unable or unsure about how to help their children due to the fact that changes to the maths curriculum are not understood by them. The lack of confidence among parents in their own maths ability may explain why the language of maths does not appear to be used at home. Thus, the plan aims to increase the children’s exposure to numeracy outside the classroom and facilitate the use mathematical vocabulary with understanding in school and at home.

**Relationship to Ethos of the School**

In Scoil Cholmcille Junior our school mission states that we aim to;

* Provide a safe and stimulating environment where each individual child can learn and develop holistically to his/her fullest potentially-intellectually, physically, culturally, morally, and spiritually in a caring Christian atmosphere.
* To develop a sense of community in the school among teachers, support staff, Board of Management and extra curricular personnel.
* To develop a shared sense of community and ownership of the school with the parents and the wider local community.

This reviewed plan will foster an enjoyment and appreciation of numeracy that will enrich the leisure time of the pupils both now and in the future. All pupils will be given equal opportunity to access, participate in and achieve their potential in relation to numeracy.

**Aims**

We endorse the aims of the Primary School Curriculum for Mathematics which are:

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

**Curriculum Planning**

* **Strands and Strand Units**

All teachers are familiar with the strands, strand units and content objectives in the Maths Curriculum and refer to them regularly when planning for their classes ensuring all strands and strand units are covered.

|  |  |
| --- | --- |
| STRANDS | STRAND UNITS |
| Early Mathematical Activities (Infants) | Classifying, Matching, Comparing Ordering |
| Number | Counting, Comparing and Ordering, Analysis of Number (introduced in Infants )Numeration, Place Value, Operations: Addition, Subtraction, Fractions (introduced in 1st 2nd) |
| Algebra | Extending patterns (introduced in Infants)Extending and using patterns (introduced in 1st/2nd)Number patterns and sequences,  |
| Shape and Space | Spatial Awareness, 2D shapes 3D shapes (introduced in Infants) Symmetry, Angles (introduced in 1st/2nd) |
| Measures | Length, Weight, Capacity, Time, Money (introduced in infants) Area (introduced in 1st/2nd) |
| Data | Recognising and interpreting data (introduced in Infants) |

* **Approaches and methodologies**

The following approaches and methodologies are used throughout the year:

**The use of Manipulatives:**

Children will have access to and use a broad range of mathematical equipment in order that mathematical concepts can be consolidated through investigation and play. (see Appendix 1 for a list of class resources and Appendix 2 for a list of shared resources)

**Talk and Discussion**: Talk and discussion is seen as an integral part of the learning process and opportunities should be provided during the Maths class for children to discuss problems with the teacher, other individual children and in groups.

Teachers engage in focused discussion to introduce the lesson and to model mathematical language. Individual and group discussion occurs throughout lessons.

The RSG Maths lesson plans finish with child led discussion of what they learnt with a focus on the mathematical language specific to what was learnt.

**Active Learning/ Guided Discovery:** As part of the Maths programme for each class, children are provided with structured opportunities to engage in exploratory activities under the guidance of the teacher to construct meaning, to develop mathematical strategies for solving problems and to develop self motivation in mathematical activities. ‘Maths for Fun’ also reinforces active learning and is a strategy used by the school with the help and support of parents.

**Collaborative and Co-operative Learning**

Teachers use a variety of organisational styles to encourage co-operative and collaborative learning, such as pair work, group work, whole class work, ‘buddying’. The use of ICT such as the Interactive WhiteBoard and Class computers also support collaborative and co-operative Learning

**Estimating**

Estimation will form part of every Maths lesson. Children will be encouraged to use a variety of strategies as outlined on pages 32 – 34 of the Teacher Guidelines for Mathematics

* Front end
* Clustering
* Rounding
* Special numbers.

**Problem Solving**

Children are encouraged to use their own ideas as a context for problem solving and will be taught to apply the following strategies at Infant level:

Understanding the problem

Read the problem

Read it again

Say, in your own words, what you are trying to find out

Find the important information

Look for key phrases

Write what you know

Additional Help

Draw a picture

Make an organised list or table

Use objects to act out the problem

Use easier numbers

Work backwards

Answering the problem

Use all the important information

Check your work

Decide if the answer makes sense

Write the answer in a complete sentence

Strategies for 1st and 2nd classes

R.U.D.E

As the children begin to encounter written maths problems they are encouraged to use the abbreviated R.U.D.E. model for solving a Maths problem – Read, Underline the key words, Draw a diagram of the problem, Estimate your answer and then attempt to solve the problem. While all children should be exposed to this model regularly and be very familiar with it by the time they reach 2nd class, we are aware of variety of literacy abilities within the class setting.

**Using the environment/community as a learning resource:**

The school building is used as a resource to support the Maths programme. Teachers use the school environment to provide opportunities for mathematical problem solving e.g. numbers on doors, using hula hoops to sort children in PE, games on the playground, count trees in the playground, count windows, observe shapes of windows, doors etc.

The work the HSCL cluster did during 2012 2013 to create Maths Trails in the local park and in the school environment will be used and developed.
Children are encouraged to collect real data i.e. infant classes collect personal information and represent it on a pictogram for example; older children create and interpret bar charts and pie charts. Children are made aware of the importance of entering relevant data and asking clear question to extract the required information from the data.

**Mental Mathematics:**
The following number limits for each class will be adhered to:

|  |  |
| --- | --- |
| Class | Numerals |
| Junior Infants | 0 – 5 |
| Senior Infants | 0 – 10 recognition. 0-20 counting |
| 1st Class | to 99 |
| 2nd class | to 199 |

As part of our whole school strategy every Maths lesson will involve at least 5 minutes oral/mental number work. The mathematical language used for these lessons will be based on the R.S.G maths progmramme so that as children transfer through the school, they will be accustomed to the same mental number work, using the same language. Parents will be encouraged to do the same mental maths work at home.

Children in first class will concentrate on learning addition facts up to and including 12+12 tables

Children in second class will revise addition tables and learn subtraction tables.

Class teachers will assess and monitor children’s progress and identify any children having difficulties with tables and set them realistic targets thus ensuring steady progression

**Mathematical Language**There is a strong link between language and concept acquisition. We feel it is important to have a common approach to the terms used and the correct use of symbol names. This language has been agreed at whole school level in order to ensure consistency from one class to the next and also to help avoid confusion for children having difficulties with Mathematics. The language was sourced from RSG Maths and Planet Maths (See Appendix 3 for the language agreed by staff)

**Computation Skills**

The following outlines the development of computation concepts from Junior Infants to 2nd Class

Junior Infants

|  |  |
| --- | --- |
| Addition: | Language: and, makes, add, is the same as, altogether makesNo signs used |

Senior Infants

|  |  |
| --- | --- |
|      2+  1    3 | Introduction of signs: +, = Top down: 2 plus 1 equals 32 + 1 equals 3 |
| 2+1 =3 |  Across reads 2 plus 1 equals 3 or 2 and 1 makes 3 |

First Class

|  |  |
| --- | --- |
| Subtraction: | - is introduced as a symbol in First classLanguage: take away, less than, left |
|  16- 4 | Vertical: start from the top using the words ‘take away’16 take away four equals |
| 5 – 1= | Horizontal: Read from left to right using the words ‘take away’5 take away 1 equals |
| Place Value | The words ‘unit’ and ‘ones’ will be used |

Second Class

|  |  |
| --- | --- |
| Addition: |   |
| 7+3+8= 18 | 7 plus 3 plus 8 equals 18  (7plus 3 equals 10 plus 8 equals 18) |
|   6  3+6  | 6 plus 3 plus 6encourage  6 + 6 + 3 |
| Subtraction | Language: subtraction, decrease, subtract, take away, from, less than, minus, difference |
|  27-18 | 7 take away 8 I cannot do so I change a ‘ten’ to ten units,  7+10= 17. 17 take 8 equals 9. 1 take away 1 leaves O. |
| TU | Regrouping will be used as the method of adding and subtracting bigger numbers |

The following skills will be acquired by the children through the study of the various strands in the Curriculum:

* Applying and Problem Solving
* Communicating and Expressing
* Integrating and Connecting
* Reasoning
* Implementing
* Understanding and Recalling
* Estimation
* **Assessment and record keeping**

Assessment is used by teachers to inform their planning, selection and management of learning activities so that they can make the best possible provision for meeting the varied mathematical needs of the children in our school. Teachers use a number of tools for assessing pupils’ work including teacher observation and questioning, teacher designed tasks and tests both weekly and termly, checklists, portfolio in the form of worksheets and work in copies. Children’s self assessment is also used. Test results are kept by the class teacher and passed on to the next teacher.

The Sigma T standardised test is administered every year during May in 1st and 2nd classes and results of the standardised test are communicated to parents of children in 2nd class.The full booklet is kept for one year after the test is administered. After this year, the front cover of the test with test scores is kept on file for ten years and the rest of the booklet is binned. For children who score poorly, the entire test booklet is kept on file for further analysis by the class teacher and the learning support team.

All Senior Infants are screened in May using the Maths Recorery Assessment test by the L/S team to identify the children who may need learning support in 1st class.

Class teachers assess and monitor children’s progress and identify any children having difficulties. Teachers may give these children extra help or increase time spent using concrete materials. Parents will be kept informed if the teacher has a concern. If the child does not make progress the class teacher will consult with the L/S Special Needs team who will provide support using available resources within the school.

* **Children with Different Needs**

The Maths programme aims to meet the needs of all children in the school. This will be achieved by teachers varying pace, content and methodologies to ensure learning for all children.
Those children who receive scores at or below the 10th percentile on the standardised tests will have priority in attending the Learning Support teacher for supplementary teaching for Maths. The availability of supplementary teaching for Maths, however, depends on the case load of the Learning Support teacher. Arrangement will be in accordance with the recommended selection criteria as determined by the DES.

The Learning Support team support the class teacher by withdrawing children from class and by team teaching within the class setting. When a child is withdrawn to the Learning Support room, regular communication ensures that the child in receipt of learning support is following the class programme in a differentiated manner. Meetings take place during choir time when all children attend choir. Schemes of planned work are discussed and monitored.

**Organisational Planning**

* **Timetable**

In line with The National Strategy to Improve Literacy and Numeracy 2011 2020 the time spent teaching numeracy has increased by 70 mins per week. Thus we must allocate 3 hours 25 mins developing numeracy skills at infant level and 4 hours 10 mins from 1st-6th. Class teachers’ time-tables must record this time allocation form Mathematics. There is one hour discretionary time allocated for infant classes each week and this can occasionally be used for Maths.

* **Homework**

Very little maths homework is given as teachers want to encourage as much reading at home as possible. In Senior Infants, maths worksheets are gradually phased in towards the end of the 1st term. In 1st and 2nd class small manageable amounts of maths homework is given more regularly. Oral tables are given to learn at home. The children who attend learning support are given the same homework as the class.

* **Resources and ICT**

Each class teacher has a maths chest containing the basic maths equipment for the class level. (See Appendix 1). The class teacher uses the equipment for the year. The class teacher is responsible for the Maths chest, and for returning it and all its contents to Ms Freda Sinnott at the end of the year.

All teachers of Junior and Senior Infants have RSGM teachers manuals, manipulatives and sets of laminated game sheets. (See Appendix 4). These are returned to\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

All teachers of Junior and Senior Infants are given a Planet Maths Zip folders containing Manuals and supplementary games and activities. These packs are the responsibility of individual class teachers and must be returned to Ms Freda Sinnott with all its contents at the end of the year.

A list of any items that have to be repaired or replaced should be sent to Ms. Freda Sinnott.

All teachers have individual Rainbow Packs containing numberlines, addition trees, tens and units boards, hundred squares and pegs. There is a shared ‘Maths for Fun’ box containing a variety of games suitable for 1st and 2nd classes. (See appendix 2)

* **Individual teachers’ planning and reporting**

Teachers should base their yearly and short term plans on this whole school plan for Maths. Teachers plan together in class groupings to ensure similar content and methodologies. Work covered will be outlined in the Cuntas Míosúil which will be submitted to the Principal

Learning Support and class teacher plan regularly for the children they teach. Planning is informed by the various assessment tools outlined above.

* **Staff development**

The staff are very committed and willing to up-skill, having trained in RSG maths, Maths Recovery and XXX . Any information on Training courses that comes from the local Education Centres is disseminated to all staff. The Board of Mannagement is very supportive of Staff development, and has assisted towards the cost of training. Where substitute cover is not provided by the Department of Education, and where teachers wish to attend training during school time, the Board has provided substitute cover.

* **Parental Involvement Home School Links**

The staff welcomes parental involvement in the school and in their child’s education. Individual parent/teacher meetings are held annually in November. Teachers and parents are afforded this chance to discuss each individual child’s progress in Maths and other areas, and ways of assisting that progress. Parents and teachers are welcome to make individual arrangements to discuss matters of relevance at other times throughout the year.

The HSCL has organized maths classes to inform parents about the content and methodologies used to teach maths. Recently devised maths trails by the local HSCL cluster offer the parents opportunities to discuss everyday maths with their children.

Parents are further encouraged to expose their children to everyday maths experiences, such as cooking and shopping.

**Monitoring and Evaluation**

On-going assessment, formal and informal, will show that pupils are acquiring an understanding of mathematical concepts and a proficiency in maths skills appropriate to their age and ability.

Implementation of the school plan will be evident in teachers’ preparation and monthly reports.

Teachers will know from their new classes in September that work/approaches as outlined in the plan have been covered by the previous teacher

**Review Procedure**

From 2012 all primary schools will engage in school self-evaluation and produce three-year improvement plans for numeracy. The school self-evaluation process and the school improvement plan will be informed by assessment information and other forms of evidence, such as the views of pupils and their engagement in learning and in school life. The school will record its own judgement about its performance and the quality of its work, in the form of a concise school self-evaluation report. As a result of the school self-evaluation process the school will produce a short school improvement plan, containing specific and measurable targets to improve outcomes for learners. This process will ensure that the maths plan is reviewed in the light of self evaluation.

**Appendix 1**

**Content of Classroom Maths Chest**

|  |  |
| --- | --- |
| Junior Infants |  |
| Item | Quantity |
| Set of three measuring jugs | 1 |
| Set of measuring spoons (green) | 1 |
| Set of three measuring cups | 1 |
| Bag of euro coins | 1 |
| Set of number dice (mixed) | 1 |
| Sorting Trays from Super Duper Set | 5 |
| Number line to 5 | 1 |
| Number line to 10 | 1 |
| Shape bean bag set | 1 |
| Number bean bag set | 1 |
| Colour bean bag set | 1 |
| Small box of transparent counters | 1 |
| Number & colour dials / spinners | 1 |
| 3 Tubs of Bears | 3 |
| Tub of farm animals |  |
| Tub of mini motors |  |
| Bag of dinosaurs |  |
| Bag of fruit |  |
| Large tub of Links |  |

|  |  |
| --- | --- |
| Senior Infants |  |
| Item | Quantity |
| Clock | 1 |
| Three Bears Balance | 1 |
| Tubs of three Bears | 3 |
| Tub of Math Link Cubes | 1 |
| Tub of Attribute Beads | 1 |
| Tub of Attribute Blocks | 1 |
| Set of Attribute Beads Cards | 1 |
| Tub of Connecting People | 1 |
| Tub Of Links | 1 |
| Set Of Links Cards | 2 |
| Tub of 3D Geometric Solids | 1 |
| Tub of Coins | 1 |
| Set of Beanbag Colours | 1 |
| Set of Beanbag Numbers 1-10 | 1 |
| Floor Numberline 0-10 | 1 |

**Appendix 2**

**Shared Resources- Maths 4 Fun**

**Appendix 3**

**Maths Language**

**Mathematical language**

An important aim of the mathematics programme is to enable the child to use mathematical language effectively and accurately. This includes the ability to listen, question and discuss as well as to read and record. Expressing mathematical ideas plays an important part in the development of mathematical concepts. Some of the language will be encountered only in the mathematics lesson, and children will need many opportunities to use it before it becomes part of their vocabulary. In other cases, everyday words will be used in mathematics but will take on new meanings, which may be confusing for the learner.

Discussion plays a significant role in the acquisition of mathematical language and in the development of mathematical concepts. The child may be helped to clarify ideas and reduce dependence on the teacher by discussing concepts and processes with other children. Discussion with the teacher is also essential. As the need arises, the teacher will supply appropriate mathematical language to help the child to clarify ideas or to express them more accurately.

In view of the complexity of mathematical symbols, it is recommended that children should not be required to record mathematical ideas prematurely. Concepts should be adequately developed before finding expression in written recording. The use of symbols and mathematical expressions should follow extended periods of oral reporting and discussion.

**Mathematical language in context**

There is an agreed emphasis on the language of mathematics i.e. we do have a list of terminology, language appropriate for each class level (see below)

There is a conscious effort made to use the children’s own ideas and environment as a basis for reinforcing mathematical language, *e.g. you are taller than he is, teacher’s table is longer/wider than yours*

Note:  Although the whole-school plan may have identified particular terms to be used at different class levels, care must be taken that children, during their school career, are exposed to the different terms used in relation to the methods and symbols e.g. +, add, plus etc.

Our agreed language is as follows:

JUNIOR INFANTS:

No signs used

|  |  |
| --- | --- |
| Addition: | Language: and, makes, add, is the same as, altogether makes, together |
| Counting: | Language: Count forwards to 5, count backwards from 5, What number comes before 2? What number comes after 2?  |

SENIOR INFANTS:

Introduction of signs: +, =
Vocabulary to match this: plus, equals (and, makes, same as, is, will be, answer is)

|  |  |
| --- | --- |
|      2+  1    3 | Top down: 2 plus 1 equals 32 + 1 equals 3 |
| 2+1 =3 | reads 2 plus 1 equals 3 or 2 and 1 makes 3 |
|   2 +  1     3 | Bottom up:1 plus 2 equals 3. 1 + 2 equals 3 |
| 1+2 =3 | reads 1 plus 2 equals 3 or 1 and 2 makes 3 |

FIRST CLASS

 In an example such as 25+28 the pupils will be taught to say: eight plus five equals thirteen (1 ten and 3 units). Write down the three units at the bottom and carry the one ten on the line. One and two are three and two are five.

|  |  |
| --- | --- |
| Subtraction: | Language: take away, subtract, minus |
|  16- 4 | Vertical: start from the top using the words ‘take away’16 take away four equals |
| 5 – 1= | Horizontal: Read from left to right using the words ‘take away’5 take away 1 equals |

SECOND CLASS

|  |  |
| --- | --- |
| Addition: |   |
| 7+3+8= 18 | 7 plus 3 plus 8 equals 18  (7plus 3 equals 10 plus 8 equals 18) |
|   6  3+6  | 6 plus 3 plus 6encourage  6 + 6 + 3 |
| Subtraction | Language: subtraction, subtract, take away, from, less than, minus, difference |
|  27-18 | 7 take away 8 I cannot do so I change a ‘ten’ to ten units, 7+10= 17. 17 take 8 equals 9. 1 take away 1 leaves O. |
| **Subtraction** **Subtraction with renaming**  |  In an example such as 65-23=42 the pupils will be taught to say: five take away three equals two. Six take away two equals four.In examples such as 85-68=17, the methods used will be that of renaming. Teachers will do lots of prior work on place value and renaming such as 85=8 tens and 5units or 7tens and 15units. |
|  |  |

**Numeral formation**
There is an agreed approach to numeral formation in the junior classes. The rhymes or stories may vary but the formation is as follows:

**1.** Straight down from the star

**2.** Around from the star, then down, then straight

**3.** Start at the star, then round and round

**4.** Straight down from the star it goes, then across and put on its nose

**5.** Go down from the star, around and put its hat on

**6.** Start at the star then down we go, then all around halfway or so

**7.** The star’s on his nose, go across, then straight down to his toe

**8.** Around and around and up it goes until his tail can touch his nose

**9.** Start at the star and around I go, then down a stick handle down below

**Tables**
Addition facts up to 10 will be memorised by the end of Second Class. Multiplication is a natural progression from extended addition e.g. 3 groups of 3, 4 groups of 3, 5 groups of 3 etc. Thus tables are recited throughout the school as follows: 3x 3 = 9 (three threes nine), 4x3=12 (four threes 12), 5x3=15 (five threes fifteen). All teachers are expected to teach tables this way in order to ensure consistency and avoid confusion as children move from one class to the next. A variety of methods will be used including counting 2s, 3s, 4s …, reciting, using music CDs etc. Subtraction tables will be taught as the inverse of addition. Tables are continuously revised both incidentally through operations of various concepts/ core objectives but also formally through evaluations and games; "Fizz Buzz", "Around the World! etc.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Junior infants | Senior infants | First class | Second class |
| Symbols |  | + = | -Frame Cent | <>€ |
| Numerals | 0-5 | 6-10 | to 99 | to 199 |
| Fractions |  |  | ½  | ¼ |
| Measures |  |  | Metrelitrekilogram  | centimetre |
| 2-D shapes | square, circle, rectangle, triangle |  | semi-circle | oval  |
| 3-D shapes |  | cube, cuboid, sphere, cylinder |  | Cone |
| Time  | vocabulary of time  | read time in one-hour intervals | read time in half-hour intervals | read time in quarter-hour intervals |

**Appendix 4**

**Ready Set Go Maths**