

MATHEMATICS CURRICULUM.

A. Introductory Statement:

The plan was formulated by the school staff after due consultation with relevant document and attendance at relevant in-service and other relevant courses.

B. Rationale:

- To benefit teaching and learning in our school.
- To conform to principles outlined in the primary curriculum
- To review the existing plan for Maths in light of changed emphasis and new methodologies outlined in the primary curriculum.

C. Vision:

Our school cherishes all children equally and to that end the school's plan on Maths will endeavour to help each child to reach his potential.

AIMS.

The aims of the primary mathematics curriculum are

- 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.

Broad Objectives.

When due account is taken of intrinsic abilities and varying circumstances, the mathematics curriculum should enable the child to:

Skill development.

- apply mathematical concepts and processes, and plan and implement solutions to problems, in a variety of contexts.

- communicate and express mathematical ideas, processes and results in oral and written form
- make mathematical connections within mathematics itself, throughout other subjects, and in applications of mathematics in practical everyday contexts
- reason, investigate and hypothesise with patterns and relationships in mathematics
- implement suitable standard and non-standard procedures with a variety of tools and manipulative
- recall and understand mathematical terminology, facts, definitions, and formulae.

Planning in Mathematics.

Teachers, when planning, should consider the following:

- the strands of the programme are not isolated areas.
- children will use their knowledge of one area of mathematics to explore another. They may practise their knowledge of number factors 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 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 concept 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 and teacher with child. It should be an integral part of the work in each strand
- planning should consider *individual difference* in ability, attainment and learning style
- *assessment* should be seen as an integral part of the teaching and learning progress
- 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 context drawn from their own experiences and environments.

MATHEMATICS CURRICULUM.

The Mathematics curriculum consists of five strands:

- Number
- Algebra
- Shape and space
- Measures
- Data

Children in junior infants cover a further strand: Early mathematical activities.

Each strand is subdivided into strand units. The strands, although presented separately, are inter-related. Learning in one strand is dependent on, and supportive of, ideas and concepts in other strands. A key feature of the Mathematics curriculum is the importance of developing the child's understanding of mathematical language, thereby enabling the child to accurately interpret mathematical symbols, read word problems, and articulate mathematical ideas and relationships.

1. These strand units will be used in planning for and teaching of Mathematics as follows:

(a) Junior and Senior infants:

| Strands | Strand Units |
|---|---|
| Early mathematical activities (Junior Infants) | Classifying, Matching, Comparing, Ordering |
| Number | Counting, Comparing and ordering, Analysis of number. |
| Algebra | Extending patterns |
| Shape and space | Spatial awareness, 3D shapes, 2D shapes |
| Measures | Length, Weight, Capacity, Time, Money |
| Data | Recognising and interpreting |

(b) First and second Classes:

| Strands | Strand units |
|-----------------|---|
| Number | Counting and numeration, comparing and ordering, Place value, Operations(+and -), Fractions |
| Algebra | Extending and using patterns |
| Shape and space | Spatial awareness, 2D shapes, 3D shapes, Symmetry, Angles |
| Measures | Length, Area, Weight, Capacity, Time, Money |
| Data | Representing and interpreting |

Third and fourth classes:

| Strands | Strand Units |
|-----------------|---|
| Number | Place value, Operations, Fractions, Decimals and Percentages, Number theory |
| Algebra | Directed numbers, Rules and properties, Variables, Equations |
| Shape and space | 2D shapes, 3D shapes, Lines and angles |
| Measures | Length, Area, Weight, Capacity, Time |
| Data | Representing and interpreting, Chance |

Fifth and sixth classes.

| Strands | Strand units |
|-----------------|---|
| Number | Place value, Operations, Fractions, Decimals and Percentages, Number theory |
| Algebra | Directed numbers, Rules and properties, Variables, Equations |
| Shape and space | 2D shapes, 3D shapes, Lines and angles |
| Measures | Length, Area, Weight, Capacity, Time, Money |
| Data | Representing and interpreting, Chance |

Early mathematical actives (junior infants).

2. Children will have opportunities to learn to classify, match, compare and order:

Early mathematical activities.

- Classify
- Match
- Compare
- Order

Number.

3. Children will use the following estimation strategies in number:

Estimation strategy.

- Front-end strategy
- Clustering strategy
- Rounding strategy
- Special numbers strategy

Algebra.

4. Children will have opportunities to develop their understanding of patterns, number patterns and sequences, and number sentences.

Algebra activities.

- Patterns
- Number patterns and sequences
- Number sentences

Data

5. Children will have opportunities to:

Data Activities.

- Collect data
- Represent data
- Interpret data

Measures.

6. Children will have frequent opportunities to undertake practical measuring activities.

Shape and space.

7. The following is one example of how work in shape and space to real-life situations are linked:
 - Measuring/mapping playground
 - Measuring/mapping classroom etc.

APPROACHES AND METHODOLOGIES.

8. In the teaching of Mathematics, opportunities for the children to develop the following mathematical skills will be created:

Mathematical skills.

- Applying and problem-solving
- Communicating and expressing
- Integrating and connecting
- Reasoning
- Implementing

- Understanding and recalling

9. Organisational setting

- Whole class teaching
- Pair work
- Group work
- Individual work

10. Type of presentation

- Oral
- Pictorial
- Diagrammatic
- Concrete materials
- Play scenarios
- Written (by hand or using ICT)
- Video recorder/Tape Recorder/CD player.

11. Problem-solving activities

- Word problems
- Practical tasks
- Open-ended investigation
- Puzzles
- Games
- Projects
- Mathematical trails.

12. Use of calculators

- To understand the four rules of number and their relationships
- To engage in more complex problem-solving tasks
- To remove computational barriers
- To explore the number system and discover facts and relationships
- To create and explore number patterns
- To predict and check results.

13. Use of ICT in the Mathematics curriculum

- All areas of the Maths Curriculum

Type of ICT used

- Internet
- C.D.'s

14. Children in class will have opportunities to integrate their learning in Mathematics with other subjects.

Assessment.

15. Children's progress in Mathematics will be assessed in some/all of the following ways:

Assessment tools

- Teacher observation
- Teacher-designed tasks and tests
- Work samples, portfolios and projects
- Curriculum profiles
- Diagnostic tests
- Standardised tests
- Parent feedback/Learning Support/Resource feedback.

General.

16. Parents/guardians will be involved in supporting their children's progress in Mathematics by:

- Buying materials
- Checking homework
- Parent/Teacher meetings
- Using parental expertise.

Maths Equipment.

Junior/ Senior Infants.

- Plastic Camels
- Wooden elephants & spatial awareness cards
- Variety of blocks, bottle tops, buttons, toys etc. for sorting, matching & classifying
- Unifix cubes
- Wooden apple tree peg boards
- Metre stick
- Large foam numbers
- Texture dominoes
- Wooden numeros
- Number games to play with dice
- Large box of real 1c, 2c, 5c coins
- Big books of numbers
- Balance
- Magnetic numbers
- Links (for patterns) length etc.)
- Mathemagic pictures & posters
- Large action maths posters
- Selection of junior/senior infants maths text books
- Picture & number for nylon board

- 20 small clocks
- Cubes
- Mathemagic charts for Senior Infants
- Blocks – 3D shapes

1st to 6th class

- Class clock
- Metre stick
- Charts for 2nd class Mathemagic
- Linking cubes
- Cutting fruit Tray
- Attribute Logic Blocks (shapes)
- Protractor }
• Set Square }

- 2 Clocks
- Meter stick
- Large 100 square
- 30 X 100 square mats
- Abacus
- 22 pieces 3D shapes
- Table Jigsaw

- Protractor
- Trundle Wheel

- Compass
- Protractor
- 2 metre sticks

Resource - Room 13

- 4 plastic number lines – up to 20
- Large standing 100 square
- 3 small Wooden 100 square + pegs
- 4 wooden Multiplication Squares
- 4 small white clocks
- Box of Maths Board Games
- Bingo Games: Addition & Subtraction
 Multiplication/Division
 Add/Sub/ Multiplication/Division
- 4 large Calculators
- Unifix cubes
- Foam shapes
- Tangrams
- Percentage Board
- Percentage/Fraction Dominoes

8. Multiply a whole number or a decimal (up to three places) by a whole

- number without and with a calculator.
9. Multiply a decimal (up to three places) by a whole number, without and with a calculator.
 10. Apply to problems
-
8. Divide a three-digit number by a two-digit number without and with a remainder.
 9. Divide a decimal number by a whole number without and with a calculator.
 10. Apply to problems.
-
17. Compare and order fractions and identify equivalent forms of fractions with denominator 2 – 12
 18. Express improper fractions as mixed numbers and vice versa and position them on number line.
 19. Add and subtract simple fractions and simple mixed numbers.
 20. Multiply a fraction by a whole number.
 21. Express tenths, hundredths' and thousandths in both fractional and decimal form.

Number: Percentages

1. Explore relationship between fractions and percentages
2. Compare and order fractions and percentages.

Number: Fractions, decimals and percentages.

1. Explore relationship between fractions, decimals and percentages.
2. Compare and order fractions, decimals and percentages
3. Solve problems involving operations with whole numbers, fractions, decimals and simple percentages.

Appendix 1

Mathematical Language:

Subtraction:

The staff, at the review of the Mathematics Plan, agreed to adopt the following:

The method and mathematical language will be – “Borrow and pay back, starting from the top.”

Appendix 2

Problem Solving:

1. Read the problem three times.
2. Draw (if applicable)
3. Gather information and lay out step by step.
4. Ask if the answer needs to be bigger or smaller and what mathematical operations will I use.
5. Use rough work column.
6. Practice and repetition.
7. Sample/Example copy.

Tables:

1. Learn by rote for five minutes on a daily basis.
2. Skip Counting.