Mathematics Policy

1. Rationale

It was decided to revise this plan in order to conform to the principles outlined in the new curriculum.

2.

Relationship to Characteristic Spirit of the School

Our school strives to provide a well ordered caring, happy and secure atmosphere where the intellectual, spiritual, physical, moral and cultural needs of the pupils are identified and addressed especially in the area of mathematics.

3. Aims

- To develop a positive attitude towards mathematics and increase self-confidence in pupils' approach to the subject of mathematics.
- To develop problem solving abilities.
- To provide pupils with a structures and uniform approach towards the development of their computational skills.
- To enable the child to use mathematical language affectively and accurately.
- To improve the standard of Math's in our school.

4. Content of plan

The contents of the Maths programme is attached.

5. Approaches and Methodologies

The methodologies are used in our school listed below and a variety of these are to be used throughout the year.

A. Talk and discussion

Give instructions, exploring carefully, questioning and providing key vocabulary for pupils to expired themselves in the area of mathematics.

B. Active Learning / Guided discovery/Celebrative / Co-operation Learning

Concrete materials are used at all levels especially in junior classes and with children who have specific learning difficulties in mathematics. There is a wide range of hands on material available in the school. Those materials most frequently used are number lines, counters, hundred squares, deans blocks, abacus, lollipop sticks on the magnetic board, unifix cubes, cuisenaire rods, clocks and fraction sets. Tangram sets, measuring, weighing, and capacity materials are used when those particular areas of the curriculum are being taught i.e. metre stick, tape, measuring chart, balances, scales and weights, capacity measures.

C. Learning skills through context

Pupils using maths learned in one context to solve problems in another. These skills should be developed:- integrating and connecting, reasoning, implementing, applying problem solving, communicating and expressing understanding and recalling.

D. Problem Solving

Problem solving skills are developed right through the classes. Estimation skills are developed in all strands and at all levels. Problem Solving is a discrete activity at St. Fiacc's NS with a variety of strategies in use (RUDE; Read the problem/Devise a plan/ Carry out the plan/Look back; estimating, drawing a diagram, using concrete materials; working in teams with designated roles) Resources used: **Teacher designed problems** with many types of problems (Word problems involving working backwards, drawing it out, using a table; ICT; Maths Trails; Mental Maths; Maths Games; Cross Curricular problems; Maths Projects; puzzles; open ended investigations; practical tasks) **Apex Maths; IZAK 9; Have You Got Maths Eyes; Manga High**; various **texts**.

5. Arrangements for Individual Teachers, Planning and Reporting

A. Scéim Bliana

The Scéim bliana will be devised from the school plan and each teacher will issue the same content heading.

B. Short term Plans

Each teacher devises a fortnightly scheme for the programme of work.

C. Cúntas Miosúil.

A record of work is kept on monthly basis by ticking fortnightly plans.

D. Timetabling

The time allocation for maths each week is 4 hrs 10 mins and 3hrs 25 mins respectively hours. In multi class situations, discretionary time will be needed to implement the new maths programme.

6. Communication with parents and their involvement in the learning process.

The language and methodologies of maths, in certain areas, are explained to parents especially at parent/teacher meetings or if the parents call to see individual teachers. The homework policy outlines procedures relating to completion problems and difficulties experienced. This applies to all subjects including mathematics.

7. Assessment

Pupils' work in mathematics is assessed through teacher observation, interview method, homework / parental feed back, teacher designed tasks and tests, e.g. weekly tests, monthly tests, table tests end of term / year tests. Results of tests are recorded.

8. **Normative Assessment**

Sigma T tests are administered yearly in May from first to sixth class. Parents are informed of the results of these tests on the end of year school report. All results are recorded in each pupil's file. Test results are used to help pupils who have been identified as having learning problems in Maths and to inform and improve teacher practice at an individual and whole school level.

9. **Meeting with individual needs.**

Children scoring a low STen score are assisted at in class level by the SET.

10. **Language**

Addition

Infants:	count on, add, plus, more than, equals, altogether makes
1st & 2nd	count on, add, plus, more than, and altogether, greater than, addition
3rd & 4th	as above plus the sum of, total, increase
5th & 6th	as above

Subtraction

Infants:	less than, take away, count back, minus
1st & 2nd	less than take away, count back, subtract, difference
3rd & 4th	same as above plus decrease
5th & 6th	same as above

Multiplication

1st & 2nd	group of
3rd & 4th	times, altogether, times more, multiply sets, product and factor, repeated addition
5th & 6th	same as above

Division

3rd & 4th	divided by, divided into, share, factors fractions, sets of groups, how many times divided, repeated subtraction.
5th & 6th	Quotient above, over

Language of addition tables

Infants	4+3, four and three equals seven (leading to 4 plus 3)
1st & 2nd	as above
	All other classes as above

Subtraction tables

Infants to 4th class   10-4=6, ten take away four is six (leading to minus)

5th & 6th   10-4=6, four from ten leaves six

Multiplication tables

As in table book

2x6=12, two sixes are twelve/ 2 by 6 is 12

3x6=18, three sixes are eighteen

4x6=24, four sixes are twenty four

Division tables

Invert multiplication tables

"Divided by" leading to "into"

Maths Language: addition of numbers

8+3 or 5+6 in junior classes either way three and eight or eight and three.
Five and six are left to right.

Addition of two or more digit numbers

46

24+

70   Start at top, 6 and 4 are ten, put down the 0 and carry the 1 ten.
         Start at top 4 and 2 and 1 equals 7

Maths Language: Subtraction

8

6-   8 count back/take away 6

53

28- eight from three I cannot take but borrow one ten, eight from thirteen leaves
     five, two from four leaves two. We rename five as four.

- This is the **regrouping** method, which is introduced after Christmas in
  second class
- This method is used from then onwards until the child leaves school.

Maths language: multiplication of numbers

44x5=220

Five fours are twenty put down 0 and carry two tens. Five fours are twenty and two are
      twenty two.

Maths language: division of numbers

45/5   5 into 4 won't go. 5 into 45 goes 9 times

Long division

1. For estimation, numbers to be rounded off to the nearest 10 and estimation based on these rounded off numbers.
2. All estimates to be tested in rough work column. Pupils to be reminded that estimates can be too low or too high.

Maths language of fractions

Addition and subtraction of fractions to be taught using mixed numbers
1 ½ + 1/6 =1 3/6 + 1/6 = 14/6. Multiplication and division of fractions to be taught by converting to improper fractions.

2.0 School policies on the teaching of various mathematical areas

1. Essential that tables are learned from 1st to 6th.
2. Formal multiplication tables to be commenced in 3rd class
3. Consolidate multiplication and introduce division in 3rd class
4. Constant repetition of tables in 4th, 5th and 6th class
5. Emphasis on hearing the tables frequently in every class using agreed language approaches.

2.1 Resources
The schedule of maths resources is outlined in the appended Maths inventory. The equipment is stored in a dedicated maths area which is monitored and restocked by the post holder for mathematics.

2.2 School policy on Textbooks

Teachers teach the Maths programme based on the Maths plan and textbooks play a limited role in this regard. There are no textbooks in use in infants with Maths taught based solely on concrete materials using the Ready Set Go Maths manual.

1st – 6th teachers agreed last year to teach fractions and decimals using concrete materials and Linear/Area/Set models.

2.3 Homework

Maths is given as homework, as reinforcement, and follows on from class work. The time frame and problems concerning homework are explicitly explained in our homework policy. Maths homework from 1st – 6th consists of 2-4 questions.

2.4 Success criteria

The plan will be assessed using:
- Assessment tools un the revised curriculum documents
- Feed back from pupils/parents
- Suggestion or reports from the inspector i.e. following a WSE guidelines

2.5 Roles and Responsibilities

All members of staff will co-ordinate the plan and issues involving its implementation will be discusses at lunch break, informally, or at a staff meeting. The class teacher will evaluate the plan. Miss Nolan has overall responsibility for monitoring of the Maths plan

2.6 Time frame for review

2020-2021.

Content of Maths Programme

Junior & Senior Infants

Early Mathematical Activities (junior infants)

Classifying
- Classify objects on the basis of one attribute, such as colour, shape, texture or size.
- Identify the complement of a set (i.e. elements not in a set)

Matching
- Match equivalent and non-equivalent sets using one-to-one correspondence

Comparing
- Compare objects according to length, width, height, weight, quantity, thickness or size.
- Compare sets without counting.

Ordering
- Order objects according to length or height
- Order sets without counting

Counting
- Count the number of objects in a set 1-10

Comparing and ordering
- Compare equivalent and non-equivalent sets 1-5 by matching without using symbols.
- Order sets of objects by number 1-5.
- Use the language of ordinal numbers: first to last.

Analysis of Number
Combining
- Explore the components of number, 1-5.
- Combine sets of objects, totals to 5.

Partitioning
- Partition sets of objects, 1-5

Numeration
- Develop an understanding of the conservation of number, 1-5.
- Read, write and order numerals, 1-5
- Identify the empty set and the numeral zero.

- Tell at a glance the number of objects in a set, 1-5.
- Solve simple oral problems, 0-5.

Strand   **Algebra**
Strand unit   **Extending Patterns**
- Identify, copy and extend patterns in colour, shape and size

Strand   **Shape and space**
Strand unit   **Spatial awareness**
- Explore, discuss, develop and use the vocabulary of spatial relations

Strand unit   **3-D shapes**
- Sort 3-D shapes, regular and irregular
- Solve tasks and problems involving shape

Strand unit   **2-D shapes**
- Sort and name 2-D shapes: square, circle, triangle, rectangle
- Use suitable structures materials to create pictures
- Solve problems involving shape.

Strand   **Measures**
Strand unit   **Length**
- Develop an understanding of the concept of length through exploration, discussion and use of appropriate vocabulary.
- Compare and order objects according to length or height.

Strand unit   **Weight**
- Develop an understanding of the concept of weight through exploration, handling of objects and use of appropriate vocabulary.
- Compare objects according to weight.

Strand unit   **Capacity**
- Develop an understanding of the concept of capacity through exploration and the use of appropriate vocabulary.
- Compare containers according to capacity.

Strand Unit   **Time**
- Develop an understanding of the concept of time through the use of appropriate vocabulary.
- Sequence daily events or stages in a story.

Strand unit   **Money**
- Recognise and use coins up to five cent.
- Solve practical tasks and problems using money.

Strand   Data
Strand unit   Recognising and interpreting data
- Sort and classify sets of objects by one criterion.
- Match sets equal and unequal.
- Represent and interpret a set of simple mathematical data using real objects, models and pictures.

Senior infants

Counting
- Count the number of objects in a set 0-20

Comparing and ordering
- `Compare equivalent and non-equivalent sets 0-10 by matching.
- Order sets of objects by number, 0-10.
- Use the language of ordinal numbers: first, second, third, last.

Analysis of Number
Combining
- Explore the components of number, 0-10.
- Combine sets of objects, totals to 10.
Partitioning
- Partition sets of objects, 0-10.
- Use the symbols + and = to construct word sentences involving addition.
Numeration
- Develop an understanding of the conservation of number, 0-10.
- Read, write and order numerals, 0-10.
- Identify the empty set and the numeral zero.
- Tell at a glance the number of objects in a set, 2-10.
- Solve simple oral and pictorial problems, 0-10.

Strand   Algebra
Strand unit   Extending Patterns
- Identify, copy and extend patterns in colour, shape, size and number (3-4 elements)
- Discover different arrays of the same number.
- Reorganise patterns and predict subsequent numbers.

Strand   Shape and space
Strand unit   Spatial awareness
- Explore, discuss, develop and use the vocabulary of spatial relations

Strand unit   3-D shapes
- Sort, describe and name 3-D shapes, cube, cuboids, sphere and cylinder.
- Combine 3-D shapes to make other shapes.
- Solve tasks and problems involving shape.

Strand unit   2-D shapes
- Sort and name 2-D shapes: square, circle, triangle, rectangle
- Combine and divide 2-D shapes to make larger or smaller shapes.
- Solve problems involving shape and space.
- Give simple moving and turning directions.

Strand   Measures
Strand unit   Length
- Develop an understanding of the concept of length through exploration, discussion and use of appropriate vocabulary.
- Compare and order objects according to length or height.
- Estimate and measure length in non-standard units.
- Select and use non-standard units to measure, length, width or height. Discuss reasons for choice.

Strand unitWeight
- Develop an understanding of the concept of weight through exploration, handling of objects and use of appropriate vocabulary.
- Compare and order objects according to weight.
- Estimate the weight in non-standard units.
- Select and use appropriate non-standard units to weigh objects.

Strand unit   Capacity
- Develop an understanding of the concept of capacity through exploration and the use of appropriate vocabulary.
- Compare and order containers according to capacity.
- Estimate and measure capacity in non-standard units.
- Select and use appropriate non-standard units to measure capacity.

Strand Unit   Time
- Develop an understanding of the concept of time through the use of appropriate vocabulary.
- Sequence daily and weekly events or stages in a story.
- Read time in one hour intervals.

Strand unit   Money
- Recognise coins up to twenty cents and use coins up to 10 cents.
- Solve practical tasks and problems using money.

Strand   Data
Strand unit   Recognising and interpreting data
- Sort and classify sets of objects by one and two criteria.
- Represent and interpret data in two rows or columns using real objects, models and

pictures.

First & Second Class

Skills
- Applying and problem solving
- Communicating and expressing
- Integrating and connecting
- Implementing
- Understanding and recalling

FIRST CLASS

Strand: Number
Strand Unit: Counting and numeration
The child should be able to
Read, write and order numbers 0-99, using concrete materials, hundred square and number line. Estimate numbers 0-20.

Strand Unit: Comparing and ordering
Comparing and ordering numbers 0-20. Compare equivalent and non-equivalent sets 0-20. Order sets by object, by number.

Strand Unit   Place value
Recording and placing numbers 0-99 on abacus, with deans blocks and with lollipop sticks, bundles of tens and units.

Strand unit   Operations.
The child should be enabled to
Addition:
- Explore commutative, 6+2+8 2+6=8
- Develop and recall mental strategies for addition facts within 20, doubles, near doubles. Zero properties
- Number sentences 11-20. Record periodically.
- Add numbers within 99. Estimate answers.
- Use concrete materials, number lines, hundred squares
- Counting in twos, fives and tens.

Subtraction
- Develop an understanding of subtraction, as deducting, as complementing and as difference
- Develop and recall strategies for subtraction 0-20.
- Construct number sentences and number stories;solve problems involving subtraction 0-20, record pictorially.
- Estimate differences within 99
- Subtract numbers without renaming within 99. Number lines and hundred squares.
- Use the symbol =, -, = after they have been thoroughly explained.
- Solve one step problems involving subtraction and addition.

Strand unit   Fractions
The child should be enabled to
- Establish and identify half of sets to 20. Divide objects evenly between two people. Record pictorially

Strand   Algebra

Strand unit   Extending and using patterns
The child should be enabled to
- Recognise pattern, including odd and even numbers. Count in twos on the hundred square, colour each number you stop at. Use two colours to identify odd and even numbers.
- Explore and use patterns in addition facts. Notice patterns and make up tens. 9+1=10 8+2=10   18+2=20
- Understanding the use of a frame to show the presence of an unknown number.

Strand   Space and shape
Strand unit   Spatial awareness
The child should be enabled to
- Explore and discuss the vocabulary of spatial relations: between underneath, on top of, around, through, left, right.
- Give and follow simple instructions within classroom and school settings.

Strand unit   2-D shapes
The child should be enabled to
- Sort, describe, compare and name 2-D shapes: square, rectangle, triangle, circle and semi-circle.
- Construct and draw 2-D shapes
- Combine 2-D shapes to make patterns
- Name of 2-D shape
- Discuss the use of 2-D shape in the environment.

Strand unit   3-D shapes

The child should be enabled to
- Describe, compare and name 3-D shapes: cube, cuboids, cylinder and sphere.
- Discuss the use of 3-D in the environment.
- Solve and complete practical tasks involving 2-D and 3-D shapes.
- Explore the relationship between 2-D and 3-D shapes.

Strand   measure
Strand unit   Length
The child should be enabled to
- Select, estimate, measure and record length using non-standard units.
- Estimate, measure and record length using standard units: i.e.metre. Discuss the need for a standard unit
- Solve and complete tasks involving length.

Strand unit   Weight
The child should be enabled to
- Estimate, Compare, measure and record using non-standard units; heavy, heavier, heaviest. Light lighter, lightest.
- Estimate, measure and record weight using standard units, kilogram and solve simple problems.

Strand unit   Capacity
The child should be enabled to
- Estimate, compare, measure and record capacity using non-standard units; teaspoons, cups, eggcups, glasses
- Estimate, compare, measure and record capacity using a standard unit; Litre. Need for a standard unit. Different shaped containers that hold a litre.

Strand unit   Time
The child should be enabled to
- Use the vocabulary of time to sequence events, time of day, days, weeks, months and seasons.
- Read and record time by using simple devices: egg timer, candle clock, water clock.
- Clock time, hour and half hour on a twenty four hour clock. One hour later and half hour later.
- Read day, date and month using calendar. Discuss birthdays and other significant days.

Strand unit   Money
The child should be enabled to
- Recognise and use coins to the value of 50 cent.
- Calculate how many items can be bought for a given sum.

Strand   Data
Strand unit   Representing and interpreting data

The child should be enabled to
- Sort and identify objects by two or three criteria: colour, shape, size and thickness.
- Represent and interpret data in two-four rows of columns, using pictures, objects and other material.

SECOND CLASS

Strand   Number
Strand unit   Counting and numeration
The child should be enabled to
- Count the number of objects in a set. Estimate and then check answer by counting all the four objects e.g. number of objects in the container
- Read, write and order numerals 0-99. State the number that comes before and after a random number e.g. 49. Fill in missing numbers on the hundred square.
- Estimate the number of objects in a set of 0-20.

Strand unit   Comparing and ordering
The child should be enabled to
- Compare equivalent and non-equivalent sets. Record using < > and =.
- Use the language of ordinal numbers. Using the calendar and seasons.

Strand unit   Place value
The child should be enabled to
- Explore, identify and record place value 0 - 99. Extend grouping and renaming activities to include the hundreds, in tens. Rename numbers as one hundred, tens and units. Value materials: coins, number cards, word cards and number line.

Strand unit   Operations
The child should be enabled to
Addition
- Develop an understanding of addition by conbining or partitioning sets.
- Explore, develop and apply the commutative with zero properties of addition.
- Develop and recall mental strategies for addition facts within 20. Memorize and record addition facts using strategies.
- Construct number sentences and number stories. Solve problems involving addition within 99.
- Add numbers without and renaming within 99. Estimate sums within 99. Record using notation boards, number lines and number stories. Emphasise addition of10 to

multiples of 10, to other numbers.
- Explore and discuss repeated addition and group counting, 10+10+10+10=1

Strand unit   Subtraction
The child should be enabled to
- Develop and understanding of subtraction as deducting, complimenting and as a difference.
- Develop and recall mental strategies for subtraction 0-20.
- Construct number sentences involving subtraction of whole numbers; solve problems using subtraction.
- Estimate difference without and with renaming within 99.
- Use the symbols $+ - = > <$.
- Solve one step and two step problems involving subtraction.

Strand unit   Fractions
The child should be enabled to
- Establish and identify halves and quarters of sets to 20. Discuss relationship between a half and a quarter.

Strand unit   Algebra
The child should be enabled to
- Recognise patterns and predict subsequent numbers. Counting on the one hundred square. Explore odd and even number patterns, on the one hundred square. Count in threes fours and sixes. Discuss results.
- Explore and use patterns in addition facts. Understand the use of a frame to use the presence of an unknown number 24+6= ,14+ =20 ,   2+4+ =20

Strand   Shape and space
Strand unit   Spatial awareness
The child should be enabled to
- Explore and discuss spatial relations
- Give and follow simple directions using ½ and ¼ turns.

Strand unit   2-D shapes
The child should be enabled to
- Sort and describe same shapes as learned in first class + oval shape.
- Draw and construct 2-D shapes
- Combine and partition 2-D shapes
- Divide 2-D shapes.
- ½ and ¼ shapes
- 2-D shapes in the environment

Strand unit   3-D shapes
The child should be enabled to
- Describe, compare and name 3-D shapes, as in first class + cone.
- Discuss use of 3-D shapes.

- Tasks and problems involving 3-D shapes.
- Explore relationship between 2-D and 3-D shapes.

Strand unit   Symmetry
The child should be enabled to
- Identify line symmetry in shapes and in the environment
- Complete shapes and symmetrical pictures.

Strand unit   Angles
The child should be enabled to
- Investigate things that turn full, half and quarter circle and right angles.

Strand   Measures
Strand unit   Length
The child should be enabled to
- Estimate, compare, measure and record length using non-standard units.
- Select and use non-standard measuring units.
- Estimate, measure and record using metre, centimetre, 10cm rods, half metre stick and trundle wheel.
- Solve problems using length. Measure height of children in class.

Strand unit   Area
The child should be enabled to
- Estimate and measure area using non-standard units, e.g. playing cards, postcards and copies.

Strand unit   Weight
The child should be enabled to
- Measure weight using non-standard measuring units.
- Select and use non-standard measuring units.
- Estimate, measure and record, using ½ kilogram and ¼ kilogram, pan balance, kitchen scales, bathroom scales.
- Fill 1 kilogram bags with various objects or substances.

Strand unit   Capacity
The child should be enabled to
- Estimate, measure and record capacity using non-standard units.
- Select non-standard measuring units.
- Record capacity using litre, half litre and quarter litre bottles.

Strand unit   Time
The child should be enabled to
- Use time vocabulary in sequence
- Read and record time
- Hours, ½ hours and ¼ hours on the 12 hour clock

- Hours and ½ hours on the digital clock
- Day, date and month using calendar

Strand unit   Money
The child should be enabled to
- Recognise and use money to the value of €2
- Record money as cents and later as euro and cent.

Strand unit   Data
The child should be enabled to
- Sort and classify objects by two or three criteria
- Pictograms
- Blockgraphs.

Third and Fourth Classes

THIRD CLASS

Strand   Numbers
Strand unit   Place value
- Explore and identify value in whole numbers 0-999
- Read, write and order three digit numbers
- Round whole numbers to the nearest ten or one hundred
- Explore and identify place value in decimal numbers to one place of decimals

Strand unit   Addition and subtraction
- Add and subtract without and with renaming, within 999and rounding to estimation.
- Know and recall addition and subtraction facts.
- Solve word problems involving addition and subtraction .

Strand unit   Multiplication
- Develop an understanding of multiplication as repeated addition and vice versa
- Explore understand and apply the zero, commutative and distributive properties of multiplication.
- Develop and/recall multiplication facts within 100, taking note of doubles and trebles.
- Multiply a one digit number by 0-10, and afford plenty of opportunities to estimate by rounding up or rounding down.
- Represent multiplication in both vertical and horizontal form.
- Establish effect of multiplication by 1 and by 10.

Strand unit   Division
- Develop an understanding of division as sharing and as repeated subtraction, without and with remainders.
- Develop and/or recall division facts within 100. Make this easier for pupils by

teaching division facts as the inverse of multiplication and using halves.
- Divide a one digit or a two digit number by a one digit number, without and with remainders using algoritm
- Estimate quotient and check answers.
- Estimate, discuss and record a complete practical task and to solve problems involving simple division of whole numbers.

Strand unit   Fraction
- Identify fractions and equivalent forms of fractions with denominators 2,4,6,8 and 10
- Compare and order fractions with appropriate denominators and position on the number line.
- Calculate a fraction of a set, using concrete materials.
- Develop an understanding of the relationship between fractions and division.
- Calculate a unit fraction of a number and calculate a number, given a unit fraction of the number.
- Solve and complete practical tasks and problems involving fractions.

Strand unit   Decimals
- Identify tenths and express in decimal form. Link with fractions
- Order decimals on the number line.
- Solve problems involving decimals.

Strand   Algebra
Strand unit   number patterns and sequence
- Explore, recognise and record patterns in number, 0-999.
- Explore, extend and describe sequences.
- Use patterns on the one hundred square as an aid in the memorization of number facts.

Strand unit   Number sentences
- Translate an addition or subtraction number sentence with a frame into a word problem.
- Solve one step number sentences.

Strand   Shape and space
Strand unit   2-D shapes
- Identify, describe and classify 2-D shapes: square, rectangle, triangle, circle, semi-circle, oval and irregular shapes.
- Explore the properties of 2-D shapes.
- Construct and draw 2-D shapes, using templates etc.
- Combine, tessellate and make patterns with 2-D shapes, identifying properties that facilitate tessellation.
- Identify the use of 2-D shapes in buildings, road signs, printing and household objects.

- Solve and complete practical tasks and problems involving 2-D shapes.

Strand unit   3-D shapes
- Identify, describe and classify 3-D shapes, including cube , cuboids, cylinder, cone, sphere, triangular prism, pyramid.
- Explore, describe and compare the faces, edges and corners of 3-D shapes. Do they roll, slide or stack?
- Deconstruct 3-D shapes to identify their constituent 2-D shapes.
- Construct 3-D shapes with nets, straws or pipe cleaners.
- Solve and complete practical tasks and problems involving 2-D and 3-D shapes.

Strand   Shape and space
Strand unit   Symmetry
- Identify line symmetry in the environment.
- Identify and draw lines of symmetry in two dimensional shapes, with the help of paper folding and mirrors.

Strand unit   Lines and angles
- Identify, describe, classify and construct vertical, horizontal and parallel lines.
- Recognise an angle in terms of a rotation by opening books, doors etc., or rotating clock hands etc.
- Classify angles as greater than, less than or equal to a right angle, by allowing children to construct and use their own right angles.
- Solve problems involving lines and angles.

Strand   Measures
Strand unit   Length
- Estimate, compare, measure and record lengths and heights of a wide variety of objects, using metre and centimetre.
- Rename cms. in metre and cm and vice versa.
- Solve and complete practical tasks and problems involving the addition and subtraction of metres and centimetres.

Strand unit   Time
- Consolidate and develop further a sense of time passing by sequencing events and refining vocabulary
- Read time in five minute intervals on analogue and digital clock.
- Record time in analogue and digital forms.
- Read and interpret simple common timetables.
- Rename hours as minutes and minutes as hours (confined to five minute intervals).
- Read dates from calendars and express weeks as days and vice versa.
- Solve and complete practical problems involving time and dates.#

Strand unit   Money-Euro

- Rename amounts of euro or cents and record using symbols and decimal points.
- Solve and complete one step problems and tasks involving addition and subtraction of money.

Strand unit   Area
- Estimate, compare and measure (with non standard square units) the area of regular and irregular shapes.

Strand unit   Weight
- Handle, estimate, compare, measure and record the weight of a wide variety of objects using kilograms and grams.
- Solve and complete practical tasks and problems involving the addition and subtraction of kilograms and grams. Check by weighing.

Strand unit   Capacity
- Estimate, compare and measure the capacity of a wide variety of liquids in non standard as well as litre, 500ml and 250ml measuring containers. Record capacity in litre and millilitre
- Solve and complete practical tasks and problems involving the addition and subtraction of litre and millilitre.

FOURTH CLASS

Strand   Number
Strand unit   Place value
- Explore and identify value in whole numbers 0-9999.
- Read, write and order four digit numbers
- Round whole numbers to the nearest thousand
- Explore and identify place value in decimal numbers to two places of decimals

Strand unit   Addition and subtraction
- Add and subtract, without and with renaming, within 9999 and check estimates with and without a calculator.
- Know and recall addition and subtraction facts.
- Solve word problems involving addition and subtraction

Strand unit   Multiplication

- Develop an understanding of multiplication as repeated addition and vice versa
- Explore understand and apply the zero, commutative, distributive and associative properties of multiplication.
- Develop and/recall multiplication facts within 100, taking note of doubles and trebles.
- Multiply a two digit number by a one or two digit number, check estimate with a calculator.

- Represent multiplication in expanded form.
- Record and calculate using long multiplication algoritm.
- Solve and complete practical tasks involving multiplying a two digit number by another two digit number.

Strand unit   Division
- Develop an understanding of division as sharing and as repeated subtraction, without and with remainders.
- Develop and/or recall division facts within 100.
- Divide a three digit number by a one digit number, without and with remainders using algoritm
- Explore, understand and apply the distributive property of division.
- Use calculator to check estimates.
- Estimate, discuss and record a complete practical task and to solve problems involving simple division of whole numbers.

Strand unit   Fraction
- Identify fractions and equivalent forms of fractions with denominators 2,3,4,5,6,8,9,10 and 12.
- Compare and order fractions with appropriate denominators and position on the number line.
- Calculate a fraction of a set, using concrete materials.
- Develop an understanding of the relationship between fractions and division.
- Calculate a number, given a multiple fraction of the number.
- Express one number as a fraction of another number
- Solve and complete practical tasks and problems involving fractions.

Strand unit   Decimals
- Express tenths and hundredths as fractions and decimals.
- Identify place value of whole numbers and decimals to two places and write in expanded form.
- Order decimals on the number line.
- Add and subtract whole numbers and decimals up to two places.
- Multiply and divide a decimal up to two places by a single digit whole number.
- Solve problems involving decimals.

Strand   Algebra
Strand unit   number patterns and sequence
- Explore, recognise and record patterns in number, 0-9999.
- Explore, extend and describe sequences.
- Use patterns on the one hundred square as an aid in the memorization of number facts.

Strand unit   Number sentences

- 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 number sentences.

Strand   Shape and space
Strand unit   2-D shapes
- Identify, describe and classify 2-D shapes: equilateral, isosceles and scalene triangle, parallelogram, rhombus, pentagon, octagon.
- Explore the properties of 2-D shapes.
- Construct and draw 2-D shapes, using ruler and set square.
- Combine, tessellate and make patterns with 2-D shapes, creating a tessellating pattern on squared paper.
- Identify the use of 2-D shapes in hoardings, shop fronts and paving stones.
- Solve and complete practical tasks and problems involving 2-D shapes.

Strand unit   3-D shapes
- Identify, describe and classify 3-D shapes, including cube , cuboids, cylinder, cone, sphere, triangular prism, pyramid.
- Establish that when prisms are sliced through, each face is equal in shape and size.
- Deconstruct 3-D shapes to identify their constituent 2-D shapes.
- Construct 3-D shapes from 2-D shapes.
- Solve and complete practical tasks and problems involving 2-D and 3-D shapes.

Strand   Shape and space
Strand unit   Symmetry
- Identify line symmetry in the environment.
- Identify and draw lines of symmetry as horizontal, vertical or diagonal, using examples from the environment.
- Use understanding of line symmetry to complete missing half of a shape, picture or pattern.

Strand unit   Lines and angles
- Identify, describe, classify and construct oblique and perpendicular lines.
- Draw discuss and describe intersecting lines (perpendicular or oblique) and their angles (acute, obtuse or right)
- Classify angles as greater than, less than or equal to a right angle, by allowing children to construct and use their own right angles.
- Solve problems involving lines and angles.

Strand   Measures
Strand unit   Length
- Estimate, compare, measure and record lengths and heights of a wide variety of

objects, using rulers, tape measure, trundle wheel etc..
- Rename units of length in decimal or fraction form.
- Understand, estimate and measure the perimeter of regular 2-D shapes.
- Solve and complete practical tasks and problems involving the addition, subtraction, multiplication and simple division of metres, centimetres and kilometres.

Strand unit   Time
- Consolidate and develop further a sense of time passing by sequencing events and refining vocabulary.
- Read time in one minute intervals on analogue and digital clock.
- Express digital time in analogue time and vice versa.
- Read and interpret simple common timetables.
- Rename hours as minutes and minutes as hours (confined to five minute intervals).
- Read dates from calendars and express weeks as days and vice versa.
- Solve and complete practical tasks and problems involving time and dates and the addition and subtraction of hours and minutes, renaming at the end of addition and the beginning of subtraction.

Strand unit   Money-Euro
- Rename amounts of euro or cents and record using symbols and decimal points.
- Solve and complete practical one step and two step problems and tasks involving the addition, subtraction and multiplication of money.

Strand unit   Area
- Estimate, compare and measure (with standard square units) the area of regular and irregular shapes.

Strand unit   Weight
- Handle, estimate, compare, measure and record the weight of a wide variety of objects using kilograms and grams using bathroom scales, kitchen scales, spring balance etc. Note 100g markings, ½ kg, ¼ kg etc.
- Rename grams in kilogram and grams.
- Rename units of weight using fractions and decimal fractions, to two places of decimal.
- Solve and complete practical tasks and problems involving the addition, subtraction, multiplication and division of kilograms and grams.

Strand unit   Capacity
- Estimate, compare, measure and record the capacity of a wide variety of liquids using litre and millilitre and selecting suitable instruments of measurement.
- Rename millilitre in litre and millilitre.
- Rename units of capacity using decimal and fraction form, to two decimal places.
- Solve and complete practical tasks and problems involving the addition, subtraction, multiplication and simplr division of litre and millilitre.

FIFTH CLASS AND SIXTH CLASSes

Strand   **Number**
Strand unit   **Place value**
The child should be enabled to:
- Read write and order whole numbers and decimals
- Identify place value in whole numbers and decimals.
- Round whole numbers and round decimals.

Strand unit   **Operations**
The child should be enabled to:
- Estimate sum differences, products and quotients of whole numbers.
- Add and subtract whole numbers and decimals (to three decimal places) without and with a calculator.
- Multiply a decimal by a whole number, without and with a calculator.
- Multiply a decimal by a decimal, without and with a calculator (6th).
- Divide a 3 or 4 digit number by a two digit number, without and with a calculator.
- Divide a decimal number by a whole number/decimal, without and with a calculator.

Strand unit   **Fractions**
The child should be enabled to:
- Compare and order fractions and identify equivalent forms of fractions.

- 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 fraction.
- Express tenths, hundredths and thousandths in both fraction and decimal form.
- Divide a whole number by a unit fraction (6th only).
- Understand the use of simple ratios (6th only).

Strand unit   Decimals
The child should be enabled to:
- Develop relationship between fractions and decimals.
- Compare and order fractions and decimals.
- Solve problems involving operations with whole numbers, fractions and decimals.
- Identify place value in decimals
- Round decimals
- Relate decimals to fractions
- Estimate sums and differences of decimals
- Add and subtract decimals to three places (6th only)

Strand unit   Decimals and percentages
The child should be enabled to:
- Develop an understanding of simple percentages and relate them to fractions and decimals.
- Use percentages and relate them to decimals (6th only)
- Compare and order percentages of numbers (6th only)
- Solve problems relating to profit and loss, discount, VAT, interest, decreases (6th only)
- Solve problems involving operations with whole numbers, fractions, decimals and simple percentages.

Strand unit   Number theory
The child should be enabled to:
- Identify simple prime numbers and composite numbers.
- Identify square and rectangular numbers.
- Identify and explore square numbers (6th only).
- Explore and identify simple square roots (6th only).
- Identify factors and multiples.
- Write whole numbers in exponential form.

<u>Strand   Algebra</u>
Strand unit   directed numbers
The child should be enabled to:
- Identify positive and negative numbers in context.
- Add simple positive and negative numbers on the number line (6th only).

Strand unit   Rules and properties
The child should be enabled to:
- Explore and discuss simple properties and rules about brackets and priority of operation.
- Know simple properties and rules about brackets and priority of operation (6th only)
- Identify relationships and record verbal and simple symbolic rules for number patterns.

Strand unit   Variables
The child should be enabled to:
- Explore the concept of a variable in the context of simple patterns, tables and simple formulae and substitute values for variables.

Strand unit   Equations
The child should be enabled to:
- Translate number sentences with a frame into word problems and vice versa.
- Translate word problems with a variable into number sentences (6th only).
- Solve one step number sentences and equations.

Strand   Shape and space
Strand unit   2-D shape
The child should be enabled to:
- Make informal deductions about 2-D shapes and their properties.
- Use angle and line properties to classify and describe triangles and quadrilaterals.
- Identify the properties of the circle.
- Construct triangles from given sides or angles.
- Plot simple co-ordinates and apply where appropriate
- Construct a circle of given radius or diameter.
- Tessellate combinations of 2-D shapes.
- Classify 2-D shapes according to their lines of symmetry.
- Use 2-D shapes and properties to solve problems.
- Plot simple co-ordinates and apply where appropriate

Strand unit   3-D shape
The child should be enabled to:
- Identify and examine 3-D shapes and explore relationships.
- Draw the nets of simple 3-D shapes and construct the shapes.

Strand unit   Lines and angles
The child should be enabled to:
- 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 angles in a triangle (5th) or quadrilateral (6th)

Strand   Measure
Strand unit   Length
The child should be enables to:
- Select and use appropriate instruments of measurement
- Estimate and measure length using appropriate metric units.
- Rename measures of length (6th only)
- Estimate and measure the perimeter of regular and irregular shapes.

Strand unit   Area
The child should be enabled to:
- Discover that the area of a rectangle is length by breadth.
- Estimate and measure the area of regular and irregular 2-D shapes.
- Recognise that the length of the perimeter of a rectangle shape does not determine the area of the shape (6th only).
- Calculate the area of regular and irregular 2-D shapes (6th only).
- Measure the surface area of specified 3-D shapes (6th only0.
- Calculate area using acres and hectares (6th only).
- Calculate area using square centimetres and square metres.
- Compare visually square centimetres and metres.
- Identify the relationship between square centimetres/metres (6th only).
- Find the area of a room from a scale plan (6th only).

Strand unit   Weight
The child should be enabled to:
- Select and use appropriate instruments of measurement.
- Estimate and measure weight using appropriate metric units.
- Rename measures of weight (6th only).

Strand unit   Capacity
The child should be enabled to:
- Select and use appropriate instruments of measurement.
- Estimate and measure capacity using appropriate metric units.
- Rename measures of capacity (6th only).
- Find the volume of a cuboids experimentally.

Strand unit   Time
The child should be enabled to:
- Read and interpret time tables and the 24 hour clock.
- Interpret and convert between times in 12 hour and 24 hour format.
- Explore international time zones (6th only)
- Explore the relationship between time, distance and average speed.

Strand unit   Money
The child should be enabled to:

- Explore value for money (6th only)
- Compare "value for money" using unitary method.
- Convert other currencies to euro and vice versa (6th only)

Strand   Data
Strand unit   Representing and interpreting data
The child should be enabled to:
- Collect, organise and represent data using pictograms, single and multiple bar charts and simple pie charts.
- Collect, organise and represent data using pie charts and trend graphs (6th only)
- Read and interpret pictograms, single and multiple bar charts and pie charts.
- Read and interpret trend graphs and pie charts (6th only).
- Compile and use simple data sets.
- Explore and calculate averages of simple data sets.
- Use data sets to solve problems.

Strand unit   Chance
The child should be enabled to:
- Identify and list all possible outcomes of simple random process.
- Estimate the likelihood of occurance of events.
- Construct and use frequency charts and tables.

Mathematics Policy

1. Rationale
It was decided to revise this plan in order to conform to the principles outlined in the new curriculum.

2.
Relationship to Characteristic Spirit of the School
Our school strives to provide a well ordered caring, happy and secure atmosphere where the intellectual, spiritual, physical, moral and cultural needs of the pupils are identified and addressed especially in the area of mathematics.

3. Aims

- To develop a positive attitude towards mathematics and increase self-confidence in pupils' approach to the subject of mathematics.
- To develop problem solving abilities.
- To provide pupils with a structures and uniform approach towards the development of their computational skills.
- To enable the child to use mathematical language affectively and accurately.
- To improve the standard of Math's in our school.

4. Content of plan
The contents of the Maths programme is attached.

5. Approaches and Methodologies

The methodologies are used in our school listed below and a variety of these are to be used throughout the year.

A. Talk and discussion
Give instructions, exploring carefully, questioning and providing key vocabulary for pupils to expired themselves in the area of mathematics.

B. Active Learning / Guided discovery/Celebrative / Co-operation Learning
Concrete materials are used at all levels especially in junior classes and with children who have specific learning difficulties in mathematics. There is a wide range of hands on material available in the school. Those materials most frequently used are number lines, counters, hundred squares, deans blocks, abacus, lollipop sticks on the magnetic board, unifix cubes, cuisenaire rods, clocks and fraction sets. Tangram sets, measuring, weighing, and capacity materials are used when those particular areas of the curriculum are being taught i.e. metre stick, tape, measuring chart, balances, scales and weights, capacity measures.

C. **Learning skills through context**

Pupils using maths learned in one context to solve problems in another. These skills should be developed:- integrating and connecting, reasoning, implementing, applying problem solving, communicating and expressing understanding and recalling.

D. **Problem Solving**

Problem solving skills are developed right through the classes. Estimation skills are developed in all strands and at all levels. Problem Solving is a discrete activity at St. Fiacc's NS with a variety of strategies in use (RUDE; Read the problem/Devise a plan/ Carry out the plan/Look back; estimating, drawing a diagram, using concrete materials; working in teams with designated roles) Resources used: **Teacher designed problems** with many types of problems (Word problems involving working backwards, drawing it out, using a table; ICT; Maths Trails; Mental Maths; Maths Games; Cross Curricular problems; Maths Projects; puzzles; open ended investigations; practical tasks) **Apex Maths**; **IZAK 9**; **Have You Got Maths Eyes**; **Manga High**; various **texts**.

5. **Arrangements for Individual Teachers, Planning and Reporting**

A. **Scéim Bliana**

The Scéim bliana will be devised from the school plan and each teacher will issue the same content heading.

B. **Short term Plans**

Each teacher devises a fortnightly scheme for the programme of work.

C. **Cúntas Miosúil.**

A record of work is kept on monthly basis by ticking fortnightly plans.

D. **Timetabling**

The time allocation for maths each week is 4 hrs 10 mins and 3hrs 25 mins respectively hours. In multi class situations, discretionary time will be needed to implement the new maths programme.

6. **Communication with parents and their involvement in the learning process.**

The language and methodologies of maths, in certain areas, are explained to parents especially at parent/teacher meetings or if the parents call to see individual teachers. The homework policy outlines procedures relating to completion problems and difficulties experienced. This applies to all subjects including mathematics.

7. **Assessment**

Pupils' work in mathematics is assessed through teacher observation, interview method, homework / parental feed back, teacher designed tasks and tests, e.g. weekly tests, monthly tests, table tests end of term / year tests. Results of tests are recorded.

8. **Normative Assessment**

Sigma T tests are administered yearly in May from first to sixth class. Parents are informed of the results of these tests on the end of year school report. All results are recorded in each pupil's file. Test results are used to help pupils who have been identified as having learning problems in Maths and to inform and improve teacher practice at an individual and whole school level.

9. **Meeting with individual needs.**

Children scoring a low STen score are assisted at in class level by the SET.

10. **Language**

Addition

Infants:	count on, add, plus, more than, equals, altogether makes
1st & 2nd	count on, add, plus, more than, and altogether, greater than, addition
3rd & 4th	as above plus the sum of, total, increase
5th & 6th	as above

Subtraction

Infants:	less than, take away, count back, minus
1st & 2nd	less than take away, count back, subtract, difference
3rd & 4th	same as above plus decrease
5th & 6th	same as above

Multiplication

1st & 2nd	group of
3rd & 4th	times, altogether, times more, multiply sets, product and factor, repeated addition
5th & 6th	same as above

Division

3rd & 4th	divided by, divided into, share, factors fractions, sets of groups, how many times divided, repeated subtraction.
5th & 6th	Quotient above, over

Language of addition tables

Infants	4+3, four and three equals seven (leading to 4 plus 3)
1st & 2nd	as above
	All other classes as above

Subtraction tables

Infants to 4th class	10-4=6, ten take away four is six (leading to minus)
5th & 6th	10-4=6, four from ten leaves six

Multiplication tables
As in table book
2x6=12, two sixes are twelve/ 2 by 6 is 12
3x6=18, three sixes are eighteen
4x6=24, four sixes are twenty four

Division tables
Invert multiplication tables
"Divided by" leading to "into"

Maths Language: addition of numbers
8+3 or 5+6 in junior classes either way three and eight or eight and three.
Five and six are left to right.

Addition of two or more digit numbers

46
24+
70   Start at top, 6 and 4 are ten, put down the 0 and carry the 1 ten.
        Start at top 4 and 2 and 1 equals 7

Maths Language: Subtraction

8
6-   8 count back/take away 6

53

28- eight from three I cannot take but borrow one ten, eight from thirteen leaves
     five, two from four leaves two. We rename five as four.

- This is the **regrouping** method, which is introduced after Christmas in
  second class
- This method is used from then onwards until the child leaves school.

Maths language: multiplication of numbers

44x5=220
Five fours are twenty put down 0 and carry two tens. Five fours are twenty and two are
     twenty two.

Maths language: division of numbers

45/5   5 into 4 won't go. 5 into 45 goes 9 times

Long division

1. For estimation, numbers to be rounded off to the nearest 10 and estimation based on these rounded off numbers.
2. All estimates to be tested in rough work column. Pupils to be reminded that estimates can be too low or too high.

Maths language of fractions

Addition and subtraction of fractions to be taught using mixed numbers
$1\frac{1}{2} + 1/6 = 1\ 3/6 + 1/6 = 14/6$. Multiplication and division of fractions to be taught by converting to improper fractions.

2.0 School policies on the teaching of various mathematical areas

1. Essential that tables are learned from 1st to 6th.
2. Formal multiplication tables to be commenced in 3rd class
3. Consolidate multiplication and introduce division in 3rd class
4. Constant repetition of tables in 4th, 5th and 6th class
5. Emphasis on hearing the tables frequently in every class using agreed language approaches.

2.1 Resources
The schedule of maths resources is outlined in the appended Maths inventory. The equipment is stored in a dedicated maths area which is monitored and restocked by the post holder for mathematics.

2.2 School policy on Textbooks

Teachers teach the Maths programme based on the Maths plan and textbooks play a limited role in this regard. There are no textbooks in use in infants with Maths taught based solely on concrete materials using the Ready Set Go Maths manual.

1st – 6th teachers agreed last year to teach fractions and decimals using concrete materials and Linear/Area/Set models.

2.3 Homework

Maths is given as homework, as reinforcement, and follows on from class work. The time frame and problems concerning homework are explicitly explained in our homework policy. Maths homework from 1st – 6th consists of 2-4 questions.

2.4 Success criteria

The plan will be assessed using:
- Assessment tools un the revised curriculum documents
- Feed back from pupils/parents
- Suggestion or reports from the inspector i.e. following a WSE guidelines

2.5 Roles and Responsibilities

All members of staff will co-ordinate the plan and issues involving its implementation will be discusses at lunch break, informally, or at a staff meeting. The class teacher will evaluate the plan. Miss Nolan has overall responsibility for monitoring of the Maths plan

2.6 Time frame for review

2020-2021.

Content of Maths Programme

Junior & Senior Infants

Early Mathematical Activities (junior infants)

Classifying
- Classify objects on the basis of one attribute, such as colour, shape, texture or size.
- Identify the complement of a set (i.e. elements not in a set)

Matching
- Match equivalent and non-equivalent sets using one-to-one correspondence

Comparing
- Compare objects according to length, width, height, weight, quantity, thickness or size.
- Compare sets without counting.

Ordering
- Order objects according to length or height
- Order sets without counting

Counting
- Count the number of objects in a set 1-10

Comparing and ordering
- Compare equivalent and non-equivalent sets 1-5 by matching without using symbols.
- Order sets of objects by number 1-5.
- Use the language of ordinal numbers: first to last.

Analysis of Number
Combining
- Explore the components of number, 1-5.
- Combine sets of objects, totals to 5.

Partitioning
- Partition sets of objects, 1-5

Numeration
- Develop an understanding of the conservation of number, 1-5.
- Read, write and order numerals, 1-5
- Identify the empty set and the numeral zero.

- Tell at a glance the number of objects in a set, 1-5.
- Solve simple oral problems, 0-5.

Strand   **Algebra**
Strand unit   **Extending Patterns**
- Identify, copy and extend patterns in colour, shape and size

Strand   **Shape and space**
Strand unit   **Spatial awareness**
- Explore, discuss, develop and use the vocabulary of spatial relations

Strand unit   **3-D shapes**
- Sort 3-D shapes, regular and irregular
- Solve tasks and problems involving shape

Strand unit   **2-D shapes**
- Sort and name 2-D shapes: square, circle, triangle, rectangle
- Use suitable structures materials to create pictures
- Solve problems involving shape.

Strand   **Measures**
Strand unit   **Length**
- Develop an understanding of the concept of length through exploration, discussion and use of appropriate vocabulary.
- Compare and order objects according to length or height.

Strand unit   **Weight**
- Develop an understanding of the concept of weight through exploration, handling of objects and use of appropriate vocabulary.
- Compare objects according to weight.

Strand unit   **Capacity**
- Develop an understanding of the concept of capacity through exploration and the use of appropriate vocabulary.
- Compare containers according to capacity.

Strand Unit   **Time**
- Develop an understanding of the concept of time through the use of appropriate vocabulary.
- Sequence daily events or stages in a story.

Strand unit   **Money**
- Recognise and use coins up to five cent.
- Solve practical tasks and problems using money.

Strand   Data
Strand unit   Recognising and interpreting data
- Sort and classify sets of objects by one criterion.
- Match sets equal and unequal.
- Represent and interpret a set of simple mathematical data using real objects, models and pictures.

Senior infants

Counting
- Count the number of objects in a set 0-20

Comparing and ordering
- `Compare equivalent and non-equivalent sets 0-10 by matching.
- Order sets of objects by number, 0-10.
- Use the language of ordinal numbers: first, second, third, last.

Analysis of Number
Combining
- Explore the components of number, 0-10.
- Combine sets of objects, totals to 10.
Partitioning
- Partition sets of objects, 0-10.
- Use the symbols + and = to construct word sentences involving addition.
Numeration
- Develop an understanding of the conservation of number, 0-10.
- Read, write and order numerals, 0-10.
- Identify the empty set and the numeral zero.
- Tell at a glance the number of objects in a set, 2-10.
- Solve simple oral and pictorial problems, 0-10.

Strand   Algebra
Strand unit   Extending Patterns
- Identify, copy and extend patterns in colour, shape, size and number (3-4 elements)
- Discover different arrays of the same number.
- Reorganise patterns and predict subsequent numbers.

Strand   Shape and space
Strand unit   Spatial awareness
- Explore, discuss, develop and use the vocabulary of spatial relations

Strand unit   3-D shapes
- Sort, describe and name 3-D shapes, cube, cuboids, sphere and cylinder.
- Combine 3-D shapes to make other shapes.
- Solve tasks and problems involving shape.

Strand unit   2-D shapes
- Sort and name 2-D shapes: square, circle, triangle, rectangle
- Combine and divide 2-D shapes to make larger or smaller shapes.
- Solve problems involving shape and space.
- Give simple moving and turning directions.

Strand   Measures
Strand unit   Length
- Develop an understanding of the concept of length through exploration, discussion and use of appropriate vocabulary.
- Compare and order objects according to length or height.
- Estimate and measure length in non-standard units.
- Select and use non-standard units to measure, length, width or height. Discuss reasons for choice.

Strand unitWeight
- Develop an understanding of the concept of weight through exploration, handling of objects and use of appropriate vocabulary.
- Compare and order objects according to weight.
- Estimate the weight in non-standard units.
- Select and use appropriate non-standard units to weigh objects.

Strand unit   Capacity
- Develop an understanding of the concept of capacity through exploration and the use of appropriate vocabulary.
- Compare and order containers according to capacity.
- Estimate and measure capacity in non-standard units.
- Select and use appropriate non-standard units to measure capacity.

Strand Unit   Time
- Develop an understanding of the concept of time through the use of appropriate vocabulary.
- Sequence daily and weekly events or stages in a story.
- Read time in one hour intervals.

Strand unit   Money
- Recognise coins up to twenty cents and use coins up to 10 cents.
- Solve practical tasks and problems using money.

Strand   Data
Strand unit   Recognising and interpreting data
- Sort and classify sets of objects by one and two criteria.
- Represent and interpret data in two rows or columns using real objects, models and

pictures.

First & Second Class

Skills
- Applying and problem solving
- Communicating and expressing
- Integrating and connecting
- Implementing
- Understanding and recalling

FIRST CLASS

Strand: Number
Strand Unit: Counting and numeration
The child should be able to
Read, write and order numbers 0-99, using concrete materials, hundred square and number line. Estimate numbers 0-20.

Strand Unit: Comparing and ordering
Comparing and ordering numbers 0-20. Compare equivalent and non-equivalent sets 0-20. Order sets by object, by number.

Strand Unit   Place value
Recording and placing numbers 0-99 on abacus, with deans blocks and with lollipop sticks, bundles of tens and units.

Strand unit   Operations.
The child should be enabled to
Addition:
- Explore commutative, 6+2+8 2+6=8
- Develop and recall mental strategies for addition facts within 20, doubles, near doubles. Zero properties
- Number sentences 11-20. Record periodically.
- Add numbers within 99. Estimate answers.
- Use concrete materials, number lines, hundred squares
- Counting in twos, fives and tens.

Subtraction
- Develop an understanding of subtraction, as deducting, as complementing and as difference
- Develop and recall strategies for subtraction 0-20.
- Construct number sentences and number stories;solve problems involving subtraction 0-20, record pictorially.
- Estimate differences within 99
- Subtract numbers without renaming within 99. Number lines and hundred squares.
- Use the symbol =, -, = after they have been thoroughly explained.
- Solve one step problems involving subtraction and addition.

Strand unit   Fractions
The child should be enabled to
- Establish and identify half of sets to 20. Divide objects evenly between two people. Record pictorially

Strand   Algebra

Strand unit   Extending and using patterns
The child should be enabled to
- Recognise pattern, including odd and even numbers. Count in twos on the hundred square, colour each number you stop at. Use two colours to identify odd and even numbers.
- Explore and use patterns in addition facts. Notice patterns and make up tens. 9+1=10 8+2=10   18+2=20
- Understanding the use of a frame to show the presence of an unknown number.

Strand   Space and shape
Strand unit   Spatial awareness
The child should be enabled to
- Explore and discuss the vocabulary of spatial relations: between underneath, on top of, around, through, left, right.
- Give and follow simple instructions within classroom and school settings.

Strand unit   2-D shapes
The child should be enabled to
- Sort, describe, compare and name 2-D shapes: square, rectangle, triangle, circle and semi-circle.
- Construct and draw 2-D shapes
- Combine 2-D shapes to make patterns
- Name of 2-D shape
- Discuss the use of 2-D shape in the environment.

Strand unit   3-D shapes

The child should be enabled to
- Describe, compare and name 3-D shapes: cube, cuboids, cylinder and sphere.
- Discuss the use of 3-D in the environment.
- Solve and complete practical tasks involving 2-D and 3-D shapes.
- Explore the relationship between 2-D and 3-D shapes.

Strand   measure
Strand unit   Length
The child should be enabled to
- Select, estimate, measure and record length using non-standard units.
- Estimate, measure and record length using standard units: i.e.metre. Discuss the need for a standard unit
- Solve and complete tasks involving length.

Strand unit   Weight
The child should be enabled to
- Estimate, Compare, measure and record using non-standard units; heavy, heavier, heaviest. Light lighter, lightest.
- Estimate, measure and record weight using standard units, kilogram and solve simple problems.

Strand unit   Capacity
The child should be enabled to
- Estimate, compare, measure and record capacity using non-standard units; teaspoons, cups, eggcups, glasses
- Estimate, compare, measure and record capacity using a standard unit; Litre. Need for a standard unit. Different shaped containers that hold a litre.

Strand unit   Time
The child should be enabled to
- Use the vocabulary of time to sequence events, time of day, days, weeks, months and seasons.
- Read and record time by using simple devices: egg timer, candle clock, water clock.
- Clock time, hour and half hour on a twenty four hour clock. One hour later and half hour later.
- Read day, date and month using calendar. Discuss birthdays and other significant days.

Strand unit   Money
The child should be enabled to
- Recognise and use coins to the value of 50 cent.
- Calculate how many items can be bought for a given sum.

Strand   Data
Strand unit   Representing and interpreting data

The child should be enabled to
- Sort and identify objects by two or three criteria: colour, shape, size and thickness.
- Represent and interpret data in two-four rows of columns, using pictures, objects and other material.

SECOND CLASS

Strand   Number
Strand unit   Counting and numeration
The child should be enabled to
- Count the number of objects in a set. Estimate and then check answer by counting all the four objects e.g. number of objects in the container
- Read, write and order numerals 0-99. State the number that comes before and after a random number e.g. 49. Fill in missing numbers on the hundred square.
- Estimate the number of objects in a set of 0-20.

Strand unit   Comparing and ordering
The child should be enabled to
- Compare equivalent and non-equivalent sets. Record using < > and =.
- Use the language of ordinal numbers. Using the calendar and seasons.

Strand unit   Place value
The child should be enabled to
- Explore, identify and record place value 0 - 99. Extend grouping and renaming activities to include the hundreds, in tens. Rename numbers as one hundred, tens and units. Value materials: coins, number cards, word cards and number line.

Strand unit   Operations
The child should be enabled to
Addition
- Develop an understanding of addition by conbining or partitioning sets.
- Explore, develop and apply the commutative with zero properties of addition.
- Develop and recall mental strategies for addition facts within 20. Memorize and record addition facts using strategies.
- Construct number sentences and number stories. Solve problems involving addition within 99.
- Add numbers without and renaming within 99. Estimate sums within 99. Record using notation boards, number lines and number stories. Emphasise addition of 10 to

multiples of 10, to other numbers.
- Explore and discuss repeated addition and group counting, 10+10+10+10=1

Strand unit   Subtraction
The child should be enabled to
- Develop and understanding of subtraction as deducting, complimenting and as a difference.
- Develop and recall mental strategies for subtraction 0-20.
- Construct number sentences involving subtraction of whole numbers; solve problems using subtraction.
- Estimate difference without and with renaming within 99.
- Use the symbols + - = > <.
- Solve one step and two step problems involving subtraction.

Strand unit   Fractions
The child should be enabled to
- Establish and identify halves and quarters of sets to 20. Discuss relationship between a half and a quarter.

Strand unit   Algebra
The child should be enabled to
- Recognise patterns and predict subsequent numbers. Counting on the one hundred square. Explore odd and even number patterns, on the one hundred square. Count in threes fours and sixes. Discuss results.
- Explore and use patterns in addition facts. Understand the use of a frame to use the presence of an unknown number 24+6= ,14+   =20   ,   2+4+   =20

Strand   Shape and space
Strand unit   Spatial awareness
The child should be enabled to
- Explore and discuss spatial relations
- Give and follow simple directions using ½ and ¼ turns.

Strand unit   2-D shapes
The child should be enabled to
- Sort and describe same shapes as learned in first class + oval shape.
- Draw and construct 2-D shapes
- Combine and partition 2-D shapes
- Divide 2-D shapes.
- ½ and ¼ shapes
- 2-D shapes in the environment

Strand unit   3-D shapes
The child should be enabled to
- Describe, compare and name 3-D shapes, as in first class + cone.
- Discuss use of 3-D shapes.

- Tasks and problems involving 3-D shapes.
- Explore relationship between 2-D and 3-D shapes.

Strand unit   Symmetry
The child should be enabled to
- Identify line symmetry in shapes and in the environment
- Complete shapes and symmetrical pictures.

Strand unit   Angles
The child should be enabled to
- Investigate things that turn full, half and quarter circle and right angles.

Strand   Measures
Strand unit   Length
The child should be enabled to
- Estimate, compare, measure and record length using non-standard units.
- Select and use non-standard measuring units.
- Estimate, measure and record using metre, centimetre, 10cm rods, half metre stick and trundle wheel.
- Solve problems using length. Measure height of children in class.

Strand unit   Area
The child should be enabled to
- Estimate and measure area using non-standard units, e.g. playing cards, postcards and copies.

Strand unit   Weight
The child should be enabled to
- Measure weight using non-standard measuring units.
- Select and use non-standard measuring units.
- Estimate, measure and record, using ½ kilogram and ¼ kilogram, pan balance, kitchen scales, bathroom scales.
- Fill 1 kilogram bags with various objects or substances.

Strand unit   Capacity
The child should be enabled to
- Estimate, measure and record capacity using non-standard units.
- Select non-standard measuring units.
- Record capacity using litre, half litre and quarter litre bottles.

Strand unit   Time
The child should be enabled to
- Use time vocabulary in sequence
- Read and record time
- Hours, ½ hours and ¼ hours on the 12 hour clock

- Hours and ½ hours on the digital clock
- Day, date and month using calendar

Strand unit   Money
The child should be enabled to
- Recognise and use money to the value of €2
- Record money as cents and later as euro and cent.

Strand unit   Data
The child should be enabled to
- Sort and classify objects by two or three criteria
- Pictograms
- Blockgraphs.

Third and Fourth Classes

THIRD CLASS

Strand   Numbers
Strand unit   Place value
- Explore and identify value in whole numbers 0-999
- Read, write and order three digit numbers
- Round whole numbers to the nearest ten or one hundred
- Explore and identify place value in decimal numbers to one place of decimals

Strand unit   Addition and subtraction
- Add and subtract without and with renaming, within 999and rounding to estimation.
- Know and recall addition and subtraction facts.
- Solve word problems involving addition and subtraction .

Strand unit   Multiplication
- Develop an understanding of multiplication as repeated addition and vice versa
- Explore understand and apply the zero, commutative and distributive properties of multiplication.
- Develop and/recall multiplication facts within 100, taking note of doubles and trebles.
- Multiply a one digit number by 0-10, and afford plenty of opportunities to estimate by rounding up or rounding down.
- Represent multiplication in both vertical and horizontal form.
- Establish effect of multiplication by 1 and by 10.

Strand unit   Division
- Develop an understanding of division as sharing and as repeated subtraction, without and with remainders.
- Develop and/or recall division facts within 100. Make this easier for pupils by

teaching division facts as the inverse of multiplication and using halves.

- Divide a one digit or a two digit number by a one digit number, without and with remainders using algoritm
- Estimate quotient and check answers.
- Estimate, discuss and record a complete practical task and to solve problems involving simple division of whole numbers.

Strand unit   Fraction

- Identify fractions and equivalent forms of fractions with denominators 2,4,6,8 and 10
- Compare and order fractions with appropriate denominators and position on the number line.
- Calculate a fraction of a set, using concrete materials.
- Develop an understanding of the relationship between fractions and division.
- Calculate a unit fraction of a number and calculate a number, given a unit fraction of the number.
- Solve and complete practical tasks and problems involving fractions.

Strand unit   Decimals

- Identify tenths and express in decimal form. Link with fractions
- Order decimals on the number line.
- Solve problems involving decimals.

Strand   Algebra
Strand unit   number patterns and sequence

- Explore, recognise and record patterns in number, 0-999.
- Explore, extend and describe sequences.
- Use patterns on the one hundred square as an aid in the memorization of number facts.

Strand unit   Number sentences

- Translate an addition or subtraction number sentence with a frame into a word problem.
- Solve one step number sentences.

Strand   Shape and space
Strand unit   2-D shapes

- Identify, describe and classify 2-D shapes: square, rectangle, triangle, circle, semi-circle, oval and irregular shapes.
- Explore the properties of 2-D shapes.
- Construct and draw 2-D shapes, using templates etc.
- Combine, tessellate and make patterns with 2-D shapes, identifying properties that facilitate tessellation.
- Identify the use of 2-D shapes in buildings, road signs, printing and household objects.

- Solve and complete practical tasks and problems involving 2-D shapes.

Strand unit   3-D shapes
- Identify, describe and classify3-D shapes, including cube , cuboids, cylinder, cone, sphere, triangular prism, pyramid.
- Explore, describe and compare the faces, edges and corners of 3-D shapes. Do they roll, slide or stack?
- Deconstruct 3-D shapes to identify their constituent 2-D shapes.
- Construct 3-D shapes with nets, straws or pipe cleaners.
- Solve and complete practical tasks and problems involving 2-D and 3-D shapes.

Strand   Shape and space
Strand unit   Symmetry
- Identify line symmetry in the environment.
- Identify and draw lines of symmetry in two dimensional shapes, with the help of paper folding and mirrors.

Strand unit   Lines and angles
- Identify, describe, classify and construct vertical, horizontal and parallel lines.
- Recognise an angle in terms of a rotation by opening books, doors etc., or rotating clock hands etc.
- Classify angles as greater than, less than or equal to a right angle, by allowing children to construct and use their own right angles.
- Solve problems involving lines and angles.

Strand   Measures
Strand unit   Length
- Estimate, compare, measure and record lengths and heights of a wide variety of objects, using metre and centimetre.
- Rename cms. in metre and cm and vice versa.
- Solve and complete practical tasks and problems involving the addition and subtraction of metres and centimetres.

Strand unit   Time
- Consolidate and develop further a sense of time passing by sequencing events and refining vocabulary
- Read time in five minute intervals on analogue and digital clock.
- Record time in analogue and digital forms.
- Read and interpret simple common timetables.
- Rename hours as minutes and minutes as hours (confined to five minute intervals).
- Read dates from calendars and express weeks as days and vice versa.
- Solve and complete practical problems involving time and dates.#

Strand unit   Money-Euro

- Rename amounts of euro or cents and record using symbols and decimal points.
- Solve and complete one step problems and tasks involving addition and subtraction of money.

Strand unit   Area
- Estimate, compare and measure (with non standard square units) the area of regular and irregular shapes.

Strand unit   Weight
- Handle, estimate, compare, measure and record the weight of a wide variety of objects using kilograms and grams.
- Solve and complete practical tasks and problems involving the addition and subtraction of kilograms and grams. Check by weighing.

Strand unit   Capacity
- Estimate, compare and measure the capacity of a wide variety of liquids in non standard as well as litre, 500ml and 250ml measuring containers. Record capacity in litre and millilitre
- Solve and complete practical tasks and problems involving the addition and subtraction of litre and millilitre.

FOURTH CLASS

Strand   Number
Strand unit   Place value
- Explore and identify value in whole numbers 0-9999.
- Read, write and order four digit numbers
- Round whole numbers to the nearest thousand
- Explore and identify place value in decimal numbers to two places of decimals

Strand unit   Addition and subtraction
- Add and subtract, without and with renaming, within 9999 and check estimates with and without a calculator.
- Know and recall addition and subtraction facts.
- Solve word problems involving addition and subtraction

Strand unit   Multiplication

- Develop an understanding of multiplication as repeated addition and vice versa
- Explore understand and apply the zero, commutative, distributive and associative properties of multiplication.
- Develop and/recall multiplication facts within 100, taking note of doubles and trebles.
- Multiply a two digit number by a one or two digit number, check estimate with a calculator.

- Represent multiplication in expanded form.
- Record and calculate using long multiplication algoritm.
- Solve and complete practical tasks involving multiplying a two digit number by another two digit number.

Strand unit   Division

- Develop an understanding of division as sharing and as repeated subtraction, without and with remainders.
- Develop and/or recall division facts within 100.
- Divide a three digit number by a one digit number, without and with remainders using algoritm
- Explore, understand and apply the distributive property of division.
- Use calculator to check estimates.
- Estimate, discuss and record a complete practical task and to solve problems involving simple division of whole numbers.

Strand unit   Fraction

- Identify fractions and equivalent forms of fractions with denominators 2,3,4,5,6,8,9,10 and 12.
- Compare and order fractions with appropriate denominators and position on the number line.
- Calculate a fraction of a set, using concrete materials.
- Develop an understanding of the relationship between fractions and division.
- Calculate a number, given a multiple fraction of the number.
- Express one number as a fraction of another number
- Solve and complete practical tasks and problems involving fractions.

Strand unit   Decimals

- Express tenths and hundredths as fractions and decimals.
- Identify place value of whole numbers and decimals to two places and write in expanded form.
- Order decimals on the number line.
- Add and subtract whole numbers and decimals up to two places.
- Multiply and divide a decimal up to two places by a single digit whole number.
- Solve problems involving decimals.

Strand   Algebra
Strand unit   number patterns and sequence

- Explore, recognise and record patterns in number, 0-9999.
- Explore, extend and describe sequences.
- Use patterns on the one hundred square as an aid in the memorization of number facts.

Strand unit   Number sentences

- 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 number sentences.

Strand   Shape and space
Strand unit   2-D shapes
- Identify, describe and classify 2-D shapes: equilateral, isosceles and scalene triangle, parallelogram, rhombus, pentagon, octagon.
- Explore the properties of 2-D shapes.
- Construct and draw 2-D shapes, using ruler and set square.
- Combine, tessellate and make patterns with 2-D shapes, creating a tessellating pattern on squared paper.
- Identify the use of 2-D shapes in hoardings, shop fronts and paving stones.
- Solve and complete practical tasks and problems involving 2-D shapes.

Strand unit   3-D shapes
- Identify, describe and classify 3-D shapes, including cube , cuboids, cylinder, cone, sphere, triangular prism, pyramid.
- Establish that when prisms are sliced through, each face is equal in shape and size.
- Deconstruct 3-D shapes to identify their constituent 2-D shapes.
- Construct 3-D shapes from 2-D shapes.
- Solve and complete practical tasks and problems involving 2-D and 3-D shapes.

Strand   Shape and space
Strand unit   Symmetry
- Identify line symmetry in the environment.
- Identify and draw lines of symmetry as horizontal, vertical or diagonal, using examples from the environment.
- Use understanding of line symmetry to complete missing half of a shape, picture or pattern.

Strand unit   Lines and angles
- Identify, describe, classify and construct oblique and perpendicular lines.
- Draw discuss and describe intersecting lines (perpendicular or oblique) and their angles (acute, obtuse or right)
- Classify angles as greater than, less than or equal to a right angle, by allowing children to construct and use their own right angles.
- Solve problems involving lines and angles.

Strand   Measures
Strand unit   Length
- Estimate, compare, measure and record lengths and heights of a wide variety of

objects, using rulers, tape measure, trundle wheel etc..
- Rename units of length in decimal or fraction form.
- Understand, estimate and measure the perimeter of regular 2-D shapes.
- Solve and complete practical tasks and problems involving the addition, subtraction, multiplication and simple division of metres, centimetres and kilometres.

Strand unit   Time
- Consolidate and develop further a sense of time passing by sequencing events and refining vocabulary.
- Read time in one minute intervals on analogue and digital clock.
- Express digital time in analogue time and vice versa.
- Read and interpret simple common timetables.
- Rename hours as minutes and minutes as hours (confined to five minute intervals).
- Read dates from calendars and express weeks as days and vice versa.
- Solve and complete practical tasks and problems involving time and dates and the addition and subtraction of hours and minutes, renaming at the end of addition and the beginning of subtraction.

Strand unit   Money-Euro
- Rename amounts of euro or cents and record using symbols and decimal points.
- Solve and complete practical one step and two step problems and tasks involving the addition, subtraction and multiplication of money.

Strand unit   Area
- Estimate, compare and measure (with standard square units) the area of regular and irregular shapes.

Strand unit   Weight
- Handle, estimate, compare, measure and record the weight of a wide variety of objects using kilograms and grams using bathroom scales, kitchen scales, spring balance etc. Note 100g markings, ½ kg, ¼ kg etc.
- Rename grams in kilogram and grams.
- Rename units of weight using fractions and decimal fractions, to two places of decimal.
- Solve and complete practical tasks and problems involving the addition, subtraction, multiplication and division of kilograms and grams.

Strand unit   Capacity
- Estimate, compare, measure and record the capacity of a wide variety of liquids using litre and millilitre and selecting suitable instruments of measurement.
- Rename millilitre in litre and millilitre.
- Rename units of capacity using decimal and fraction form, to two decimal places.
- Solve and complete practical tasks and problems involving the addition, subtraction, multiplication and simplr division of litre and millilitre.

FIFTH CLASS AND SIXTH CLASSes

Strand   **Number**

Strand unit   **Place value**

The child should be enabled to:
- Read write and order whole numbers and decimals
- Identify place value in whole numbers and decimals.
- Round whole numbers and round decimals.

Strand unit   **Operations**

The child should be enabled to:
- Estimate sum differences, products and quotients of whole numbers.
- Add and subtract whole numbers and decimals (to three decimal places) without and with a calculator.
- Multiply a decimal by a whole number, without and with a calculator.
- Multiply a decimal by a decimal, without and with a calculator (6th).
- Divide a 3 or 4 digit number by a two digit number, without and with a calculator.
- Divide a decimal number by a whole number/decimal, without and with a calculator.

Strand unit   **Fractions**

The child should be enabled to:
- Compare and order fractions and identify equivalent forms of fractions.

- 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 fraction.
- Express tenths, hundredths and thousandths in both fraction and decimal form.
- Divide a whole number by a unit fraction (6th only).
- Understand the use of simple ratios (6th only).

Strand unit   Decimals
The child should be enabled to:
- Develop relationship between fractions and decimals.
- Compare and order fractions and decimals.
- Solve problems involving operations with whole numbers, fractions and decimals.
- Identify place value in decimals
- Round decimals
- Relate decimals to fractions
- Estimate sums and differences of decimals
- Add and subtract decimals to three places (6th only)

Strand unit   Decimals and percentages
The child should be enabled to:
- Develop an understanding of simple percentages and relate them to fractions and decimals.
- Use percentages and relate them to decimals (6th only)
- Compare and order percentages of numbers (6th only)
- Solve problems relating to profit and loss, discount, VAT, interest, decreases (6th only)
- Solve problems involving operations with whole numbers, fractions, decimals and simple percentages.

Strand unit   Number theory
The child should be enabled to:
- Identify simple prime numbers and composite numbers.
- Identify square and rectangular numbers.
- Identify and explore square numbers (6th only).
- Explore and identify simple square roots (6th only).
- Identify factors and multiples.
- Write whole numbers in exponential form.

Strand   Algebra
Strand unit   directed numbers
The child should be enabled to:
- Identify positive and negative numbers in context.
- Add simple positive and negative numbers on the number line (6th only).

Strand unit   Rules and properties
The child should be enabled to:
- Explore and discuss simple properties and rules about brackets and priority of operation.
- Know simple properties and rules about brackets and priority of operation (6ᵗʰ only)
- Identify relationships and record verbal and simple symbolic rules for number patterns.

Strand unit   Variables
The child should be enabled to:
- Explore the concept of a variable in the context of simple patterns, tables and simple formulae and substitute values for variables.

Strand unit   Equations
The child should be enabled to:
- Translate number sentences with a frame into word problems and vice versa.
- Translate word problems with a variable into number sentences (6ᵗʰ only).
- Solve one step number sentences and equations.

<u>Strand</u>   <u>Shape and space</u>
Strand unit   2-D shape
The child should be enabled to:
- Make informal deductions about 2-D shapes and their properties.
- Use angle and line properties to classify and describe triangles and quadrilaterals.
- Identify the properties of the circle.
- Construct triangles from given sides or angles.
- Plot simple co-ordinates and apply where appropriate
- Construct a circle of given radius or diameter.
- Tessellate combinations of 2-D shapes.
- Classify 2-D shapes according to their lines of symmetry.
- Use 2-D shapes and properties to solve problems.
- Plot simple co-ordinates and apply where appropriate

Strand unit   3-D shape
The child should be enabled to:
- Identify and examine 3-D shapes and explore relationships.
- Draw the nets of simple 3-D shapes and construct the shapes.

Strand unit   Lines and angles
The child should be enabled to:
- 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 angles in a triangle (5ᵗʰ) or quadrilateral (6ᵗʰ)

Strand   Measure
Strand unit   Length
The child should be enables to:
- Select and use appropriate instruments of measurement
- Estimate and measure length using appropriate metric units.
- Rename measures of length (6th only)
- Estimate and measure the perimeter of regular and irregular shapes.

Strand unit   Area
The child should be enabled to:
- Discover that the area of a rectangle is length by breadth.
- Estimate and measure the area of regular and irregular 2-D shapes.
- Recognise that the length of the perimeter of a rectangle shape does not determine the area of the shape (6th only).
- Calculate the area of regular and irregular 2-D shapes (6th only).
- Measure the surface area of specified 3-D shapes (6th only0.
- Calculate area using acres and hectares (6th only).
- Calculate area using square centimetres and square metres.
- Compare visually square centimetres and metres.
- Identify the relationship between square centimetres/metres (6th only).
- Find the area of a room from a scale plan (6th only).

Strand unit   Weight
The child should be enabled to:
- Select and use appropriate instruments of measurement.
- Estimate and measure weight using appropriate metric units.
- Rename measures of weight (6th only).

Strand unit   Capacity
The child should be enabled to:
- Select and use appropriate instruments of measurement.
- Estimate and measure capacity using appropriate metric units.
- Rename measures of capacity (6th only).
- Find the volume of a cuboids experimentally.

Strand unit   Time
The child should be enabled to:
- Read and interpret time tables and the 24 hour clock.
- Interpret and convert between times in 12 hour and 24 hour format.
- Explore international time zones (6th only)
- Explore the relationship between time, distance and average speed.

Strand unit   Money
The child should be enabled to:

- Explore value for money (6th only)
- Compare "value for money" using unitary method.
- Convert other currencies to euro and vice versa (6th only)

Strand   Data
Strand unit   Representing and interpreting data
The child should be enabled to:
- Collect, organise and represent data using pictograms, single and multiple bar charts and simple pie charts.
- Collect, organise and represent data using pie charts and trend graphs (6th only)
- Read and interpret pictograms, single and multiple bar charts and pie charts.
- Read and interpret trend graphs and pie charts (6th only).
- Compile and use simple data sets.
- Explore and calculate averages of simple data sets.
- Use data sets to solve problems.

Strand unit   Chance
The child should be enabled to:
- Identify and list all possible outcomes of simple random process.
- Estimate the likelihood of occurance of events.
- Construct and use frequency charts and tables.