

Skills development:

- applying and problem-solving
- communicating and expressing
- integrating and connecting
- reasoning
- implementing
- understanding and recalling

Strand: Early mathematical activities
Strand unit: Classifying

Infants	First and Second	Third and Fourth	Fifth and Sixth
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)			

Strand: Early mathematical activities
Strand unit: Matching

Infants	First and Second	Third and Fourth	Fifth and Sixth
Match equivalent and non-equivalent sets using one-to-one correspondence, match pairs of identical objects in one-to-one correspondence			

Strand: Early mathematical activities
Strand unit: Comparing

Infants	First and Second	Third and Fourth	Fifth and Sixth
Compare objects according to length, width, height, weight, quantity, thickness or Size			
Compare sets without counting			

Strand: Early mathematical activities
Strand unit: Ordering

Infants	First and Second	Third and Fourth	Fifth and Sixth
Order objects according to length or height			
Order sets without counting			

Strand: Number
Strand unit: Counting (infants)
Counting and numeration (first and second)

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
Count the number of objects in a set : 1 -10 , 1-20	Count the number of objects in a set		
	Estimate the number of objects in a set 0-20		
	Read, write and order numerals, 0-99 0 – 199		

Strand: Number
Strand unit: Comparing and ordering

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
Compare equivalent and non-equivalent sets 1-5 , 1- 10 by matching without using symbols (more/less than)	Compare equivalent and non-equivalent sets 0-20 Record using < > and =		
Order sets of objects by number 1-5 , 1 - 10	Order sets of objects by number		
Use the language of ordinal number: first, last second, third	Use the language of ordinal number, first to tenth, using the calendar		

Strand: Number

Strand unit: Analysis of number

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
<u>Combining</u> Explore the components of number, 1-5, 1-10			
Combine sets of objects, totals to 5, 10			
<u>Partitioning</u> Partition sets of objects, 1-5, 0-10			
Use the symbols + and = to construct word sentences involving addition			
<u>Numeration</u> Develop an understanding of the conservation of number, 1-5 , 0 - 10			
Read, write and order numerals 1-5 , 0 - 10			
Identify the empty set and the numeral zero			
Subitise (tell at a glance)/ estimate the number of objects in a set,1-5 2- 10			
Solve simple oral problems, 0-5, 0-10			

Strand: Number
Strand unit: Place value

Infants	First and Second	Third and Fourth	Fifth and Sixth
	Explore, identify and record place value 0-99 0-199	Explore and identify place value in whole numbers, 0-999, 9999	Read, write and order whole numbers and decimals
		Read, write and order 3 digit numbers, 4 digit numbers	Identify place value in whole numbers and decimals
		Round whole numbers to the nearest ten or hundred, thousand	Round whole numbers and round decimals to nearest whole number to one, two or three decimal places
		Explore and identify place value in decimal numbers to one place, two places of decimals	

Strand: Number
Strand unit: Operations

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
	<u>Addition</u> Develop an understanding of addition by combining or partitioning sets, use concrete materials 0-20	<u>Addition and Subtraction</u> Add and subtract, without and with renaming, within 999, 9999	Estimate sums, differences, products and quotients of whole numbers, decimals
	Explore, develop and apply the commutative, associative and zero properties of addition		
	Develop and/or recall mental strategies for addition facts within 20	Know and recall addition and subtraction facts	Add and subtract whole numbers and decimals (to three decimal places) without and with a calculator
	Construct number sentences and number stories; solve problems involving addition within 20 99	Solve word problems involving addition and subtraction	
	Add numbers without and with renaming within 99	<u>Multiplication</u> Develop an understanding of multiplication as repeated addition and vice versa	Multiply a decimal (up to 3 places) by a whole number decimal
	Explore and discuss repeated addition		

	and group counting	Explore, understand and apply the zero, commutative, distributive and associative properties of multiplication	without and with a calculator
	<u>Subtraction</u> Develop an understanding of subtraction as deducting, as complementing and as difference 0-20	Develop and/or recall multiplication facts within 100	
	Develop and/or recall mental strategies for subtraction 1-20	Multiply a one-digit or two-digit number by 0-10 <i>multiply a two-digit or three-digit number by a one or two digit number</i>	
	Construct number sentences and number stories; solve problems involving subtraction 0-20		
	Estimate differences within 99	Solve and complete practical tasks and problems involving multiplication of whole numbers	
	Subtract numbers without renaming within 99, <i>within 99 and with renaming</i>	<u>Division</u>	<u>Division</u>
	Use the symbols +, -, = <, >	Develop an understanding of division as sharing and as repeated subtraction, without and with remainders	Divide a three/ four-digit number by a two-digit number, without and with a calculator
	Solve one-step, two step problems involving addition and or/ and subtraction	Develop and/or recall division facts within 100	
		Divide a one or two , three-digit number by a one-digit number without and with remainders	Divide a decimal number by a whole number, decimal without and with a calculator
		<i>Use calculators to check estimates</i>	
		Solve and complete practical tasks and problems involving division of whole numbers	

Strand: Number

Strand unit: Fractions

Infants	First and Second	Third and Fourth	Fifth and Sixth
	Establish and identify half and quarters of sets to 20	Identify fractions and equivalent forms of fractions with denominators 2, 3 , 4, 5 , 6 , 8, 9 and 10 and 12	Compare and order fractions and identify equivalent forms of fractions with denominators 2-12
		Compare and order fractions with appropriate denominators and position on the number line	Express improper fractions as mixed numbers and vice versa and position them 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	Add and subtract simple fractions and simple mixed numbers
		Calculate a number, given a multiple fraction of the number	Multiply a fraction by a whole number/ by a fraction
		Express one number as a fraction of another number	Express tenths, hundredths and thousandths in both fraction and decimal form
		Solve and complete practical tasks and problems involving fractions	Divide a whole number by a unit fraction
			Understand and use simple ratios

Strand: Number

 Strand unit: Decimals (third and fourth classes)
Decimals and percentages (fifth and sixth classes)

Infants	First and Second	Third and Fourth	Fifth and Sixth
		Identify tenths and hundredths and express in decimal form	Develop an understanding of simple percentages and relate them to fractions and decimals
		Order decimals on the number line	Compare and order fractions and decimals/ percentages of numbers
		Add and subtract whole numbers and decimals up to two places	
		Multiply and divide a decimal number up to two places by a single-digit whole number	
		Solve problems involving decimals	Solve problems involving operations with whole numbers, fractions, decimals and simple percentages/ problems relating to profit and loss, discount, VAT, interest, increases, decreases

Strand: Number

Strand unit: Number Theory

Infants	First and Second	Third and Fourth	Fifth and Sixth
			Identify simple prime and composite numbers
			Identify and explore square and rectangular numbers
			Explore and identify simple square roots
			Identify factors and multiples
			Write whole numbers in exponential form

Strand: Algebra

Strand unit: Extending patterns

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
Identify, copy and extend patterns in colour, shape and size and number (3-4 elements) using a range of objects, e.g. cubes or threading beads continue the pattern, what comes next?			
Discover different arrays of the same number teacher makes a pattern (array) using a number of counters; child creates a different array using the same number of counters			
Recognise patterns and predict subsequent numbers find the missing numbers: 2, 3, 4, _, 6, 7 10, 9, _, _, 6, 5, 4, 3, _, _.			

Strand: Algebra

Strand unit: Exploring and using patterns

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
	Recognise pattern, including odd and even numbers and predict subsequent numbers		
	Explore and use patterns in addition facts <i>notice patterns that make up tens</i>		
	Explore and use patterns in addition facts		
	frame to show the presence Understand the use of a of an unknown number		

Strand: Algebra
Strand unit: Number patterns and sequences

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
		Explore, recognise and record patterns in number, 0-999 - 9999	
		Explore, extend and describe (explain rule for) sequences	
		Use patterns as an aid in the memorisation of number facts	

Strand: Algebra
Strand unit: Number sentences

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
		Translate an addition or subtraction, <i>multiplication and division</i> number sentence with a frame into a word problem (frame not in initial position)	
		<i>Translate a one-step word problem into a number sentence</i>	

Strand: Algebra
Strand unit: Directed numbers

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
			Identify positive and negative numbers in context/ <i>on the number line</i>
			<i>Add simple positive and negative numbers on the number line</i>

Strand: Algebra
Strand unit: Rules and properties

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
			Explore/ know and discuss simple properties and rules about brackets and priority of operation
			Identify relationships and record verbal and simple symbolic rules for number patterns

Strand: Algebra
Strand unit: Variables

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
			Explore the concept of a variable in the context of simple patterns, tables and simple formulae and substitute values for variables

Strand: Algebra
Strand unit: Equations

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
			Translate number sentences with a frame/ variable into word problems and vice versa
			Solve one-step number sentences and equations

Strand: Shape and Space
Strand unit: Spatial awareness

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
Explore, discuss, develop and use the vocabulary of spatial relations position: over, under, up, down, on, beside, in directions: moving in straight/curved lines, in a circle, finding own space.	Explore, discuss, develop and use the vocabulary of spatial relations		
	Give and follow simple directions within classroom and school settings including turning directions using half and quarter turns		

Strand: Shape and Space
Strand unit: 2-D shapes

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
Sort , name, describe 2-D shapes: square, circle, triangle, rectangle	Sort, describe, compare and name 2-D shapes: square, rectangle, triangle, circle, semicircle, oval	Identify, describe and classify 2-D shapes: square, rectangle, triangle, hexagon, circle, semicircle, oval and irregular shapes/ equilateral, isosceles and scalene triangle, parallelogram, rhombus, pentagon, octagon	Make informal deductions about 2-D shapes and their properties
		Explore, describe and compare the properties (sides, angles, parallel and non-parallel lines) of 2-D shapes	Use angle and line properties to classify and describe triangles and quadrilaterals
Use suitable structured materials to create pictures Combine and divide 2- D shapes to make larger or smaller shapes. Give simple moving and turning directions	Construct and draw 2-D shapes	Construct and draw 2-D shapes	Construct triangles from given sides or angles
	Combine and partition 2- D shapes	Combine, tessellate and make patterns with 2-D shapes	Identify the properties of the circle
	Identify halves and quarters of 2-D shape		Construct a circle of given radius or diameter
	Identify and discuss the use of 2-D shapes in the environment	Identify the use of 2-D shapes in the environment	Tessellate combinations of 2-D shapes
			Classify 2-D shapes according to their lines of symmetry
			Plot simple co-ordinates and apply where appropriate
Solve problems involving shape and space		Solve and complete practical tasks and problems involving 2-D shapes	Use 2-D shapes and properties to solve problems

Strand: Shape and Space

Strand unit: 3-D shapes

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
Sort, describe and name 3- D shapes, regular and irregular	Describe, compare and name 3-D shapes, including cube, cuboid, cylinder and sphere and cone	Identify, describe and classify 3-D shapes, including, cube, cuboid, cylinder, cone, sphere, triangular prism, pyramid	Identify and examine 3-D shapes and explore relationships, including tetrahedron/ octahedron (faces, edges and vertices)
	Discuss the use of 3-D shapes in the environment	Establish and appreciate that when prisms are sliced through (in the same direction) each face is equal in shape and size	
	Explore the relationship between 2-D and 3-D shapes	Explore, describe and compare the properties of 3-D shapes	
Combine 3-D shapes to make other shapes		Explore and describe the relationship of 3-D shapes with constituent 2-D shapes	Draw the nets of simple 3-D shapes and construct the shapes
		Construct 3-D shapes	
Solve tasks and problems involving shape	Solve and complete practical tasks and problems involving 2-D and 3-D shapes	Solve and complete practical tasks and problems involving 2-D and 3-D shapes	

Strand: Shape and Space

Strand unit: Symmetry

Infants	First and Second	Third and Fourth	Fifth and Sixth
	Identify line symmetry in shape and in the environment	Identify line symmetry in the environment	
		Identify and draw lines of symmetry in two dimensional shapes	
		Identify lines of symmetry as horizontal, vertical or diagonal	
		Use understanding of line symmetry to complete missing half of a shape, picture or pattern	

Strand: Shape and Space

Strand unit: Lines and Angles

Infants	First and Second	Third and Fourth	Fifth and Sixth
	Explore and recognise angles in the environment	<i>Lines and Angles</i> Identify, describe and classify vertical, horizontal and parallel lines/ <i>oblique and perpendicular lines</i>	<i>Lines and Angles</i> Recognise, classify and describe angles and relate angles to shape and the environment
		Draw, discuss and describe intersecting lines and their angles	
		Recognise an angle in terms of a rotation	Recognise angles in terms of a rotation
		Classify angles as greater than, less than or equal to a right angle	Estimate, measure and construct angles in degrees
		Solve problems involving lines and angles	Explore the sum of the angles in a triangle/ <i>quadrilateral</i>

Strand: Measures

Strand unit: Length

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
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			
<i>Estimate and measure length in non-standard units estimate, and check by measuring</i>	Estimate, compare, measure and record length using non-standard units	Estimate, compare, measure and record lengths of a wide variety of objects using appropriate metric units (m, cm)	Select and use appropriate instruments of measurement
<i>Select and use appropriate non-standard units to measure length, width or height. Discuss reasons for choice</i>	Select and use appropriate non-standard measuring units and instruments		
	Estimate, measure and record length using standard unit (the metre and centimetre)	Rename units of length in m and cm - 125 cm = 1 m 25 cm <i>Rename units of length using decimal or fraction form</i>	Estimate and measure the perimeter of regular and irregular shapes <i>Rename measures of length</i>

	Solve and complete practical tasks and problems involving length	Solve and complete practical tasks and problems involving the addition and subtraction of units of length (m, cm)	
		Solve and complete practical tasks and problems involving the addition, subtraction, multiplication and simple division of units of length (m, cm, km)	
	Estimate, measure and record length using metre and centimetre through counting and recording, explore relationship between metre and centimetre	Estimate, compare, measure and record lengths of a wide variety of objects, using appropriate metric units, and selecting suitable instruments of measurement	
		Understand, estimate and measure the perimeter of regular 2-D shapes	Use and interpret scales on maps and plans

Strand: Measures

Strand unit: Weight

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
Develop an understanding of the concept of weight through exploration, handling of objects, and use of appropriate vocabulary			
Compare objects according to weight, compare objects that differ in size, shape and weight by handling			
Estimate and weigh in non-standard units	Estimate, compare, measure and record weight using non-standard units	Estimate, compare, measure and record the weight of a wide variety of objects using appropriate metric units (kg, g)	Select and use appropriate instruments of measurement
Select and use appropriate non-standard units to weigh objects	Select and use appropriate non-standard measuring units and instruments	Solve and complete practical tasks and problems involving the addition and subtraction of units of weight (kg and g) and selecting suitable instruments of measurement	Estimate and measure weight using appropriate metric units
	Estimate, measure		

	and record weight using standard unit (the kilogram), half kilogram and quarter kilogram and solve simple problems	Rename units of weight in kg and g	Rename measures of weight
	Explore and discuss instances when objects or substances that weigh 1 kg vary greatly in size	Rename units of weight using decimal or fraction form	
		Solve and complete practical tasks and problems involving the addition, subtraction, multiplication and simple division of units of weight (kg and g)	

Strand: Measures
Strand unit: Capacity

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
Develop an understanding of the concept of capacity through exploration and the use of appropriate vocabulary			
Compare containers according to capacity	Estimate, compare, measure and record capacity using non-standard units	Estimate, compare, measure and record the capacity of a wide variety of objects using appropriate metric units (l, ml) and selecting suitable instruments of measurement	Select and use appropriate instruments of measurement
Estimate and measure capacity in non-standard units			Estimate and measure capacity using appropriate metric units
Select and use appropriate non-standard units to measure capacity	Select and use appropriate non-standard measuring units and instruments	Solve and complete practical tasks and problems involving the addition and subtraction of units of capacity (l, ml)	
		Rename units of capacity in l and ml 1500 ml = 1 l 500 ml	Rename measures of capacity
		Rename units of capacity using decimal and fraction form	

	Estimate, measure and record capacity using standard unit (the litre), half-litre and quarter-litre and solve simple problems		Find the volume of a cuboid experimentally
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Strand: Measures
Strand unit: Time

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
Develop an understanding of the concept of time through the use of appropriate vocabulary	Use the vocabulary of time to sequence events	Consolidate and develop further a sense of time passing	
Sequence daily and weekly events or stages in a story	Read and record time using simple devices	Read time in five-minute/ one-minute intervals on analogue and digital clock (12-hour)	Read and interpret timetables and the 24-hour clock (digital and analogue)
Read time in one-hour intervals	Read time in hours and half-hours and quarter-hours on 12-hour analogue clock	Record time in analogue and digital forms	Interpret and convert between times in 12-hour and 24-hour format
		Express digital time as analogue time and vice versa	
	Read day, date and month using calendar and identify the season	Rename minutes as hours and hours as minutes	
		Read dates from calendars and express weeks as days and vice versa	
Read time in hours and half hours on digital clock	Solve and complete practical tasks and problems involving times and dates and the addition and subtraction of hours and minutes	Explore international time zones Explore the relationship between time, distance and average speed	

Strand: Measures

Strand unit: Area

Infants	First and Second	Third and Fourth	Fifth and Sixth
	Estimate and measure area using non-standard units	Estimate, compare and measure the area of regular and irregular shapes non standard units standard square units	Discover that the area of a rectangle is length by breadth
			Estimate and measure/ calculate the area of regular and irregular 2-D shapes
			Calculate area using square centimetres and square metres
			Compare visually square metres and square centimetres
			Recognise that the length of the perimeter of a rectangular shape does not determine the area of the shape
			Measure the surface area of specified 3-D shapes
			Calculate area using acres and hectares
			Identify the relationship between square metres and square centimetres
			Find the area of a room from a scale plan

Strand: Measures

Strand unit: Money

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
Recognise and use coins (up to 5 cents, 10 cents and 20 cents)	Recognise, exchange and use coins up to the value of 50 cents	Rename amounts of euro or cents and record using symbols and decimal point	Compare/ explore 'value for money' using unitary method
Solve practical tasks and problems using money	Calculate how many items may be bought with a given sum	Solve and complete one-step and two step problems and tasks involving the addition and subtraction, multiplication and simple division of money	Convert other currencies to euro and vice versa
	Recognise, exchange and use coins up to the value of €2		
	Write the value of a group of coins; record money amounts as cents and later as euro		

Strand: Data
**Strand unit: Recognising and interpreting data (infants)
Representing and interpreting data (first to sixth classes)**

Junior and Senior Infants	First and Second	Third and Fourth	Fifth and Sixth
Sort and classify sets of objects by one and two criterion	Sort and classify objects by two and three criteria		
Match sets, equal and unequal			
Represent and interpret a set of simple mathematical data using real objects, models and pictures	Represent and interpret data in two, three or four rows or columns using real objects, models and pictures	Collect, organise and represent data using pictograms, block graphs and bar charts and bar-line graphs incorporating the scales 1:2, 1:5, 1:10, and 1:100	Collect, organise and represent data using pictograms, single and multiple bar charts and simple pie charts and trend graphs
Represent and interpret data in two rows or columns	Represent, read and interpret simple tables and charts (pictograms)	Read and interpret tables, pictograms, block graphs and bar charts and bar-line graphs and simple pie charts	Read and interpret pictograms, single and multiple bar charts, and pie charts and trend graphs
	Represent, read and interpret simple block graphs	Use data sets to solve and complete practical tasks and problems	Compile and use simple data sets
			Explore and calculate averages of simple data sets
			Use data sets to solve problems

Strand: Data
Strand unit: Chance

Infants	First and Second	Third and Fourth	Fifth and Sixth
		Use vocabulary of uncertainty and chance: possible, impossible, might, certain, not sure, chance, likely, unlikely, never, definitely	
		Order events in terms of likelihood of occurrence	Identify and list all possible outcomes of simple random processes
			Estimate the likelihood of occurrence of events, order on a scale from 0 to 100%, 0 to 1
		Identify and record outcomes of simple random processes	Construct and use frequency charts and tables