

Saint Margaret Mary's Catholic Infant School

Mathematics Progression

	Nursery	Reception		Year 1	Year 2
Skills	Count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. Build and apply understanding using manipulatives including small pebbles and tens frames for organising counting. Develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. Develop spatial reasoning skills across all areas of mathematics including shape, space and measure. Develop positive attitudes and interests in mathematics. Look for patterns and relationships, spot connections, have a go, talk to adults and peers about what they notice and not be afraid to make mistakes.		Skills	Become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language. Can solve problems by applying their mathematic to a variety of routing and non-routine problems with increasing sophistication, including braking down problems into a series of simpler steps and persevering in seeking solutions.	

Programme of Study (Knowledge)	Nursery	Reception	Number: Number and Place Value	Year 1	Year 2
	<ul style="list-style-type: none"> • Experiment with their own symbols and marks as well as numerals. • Solve real world mathematical problems with numbers up to 5. • Compare quantities using language: 'more than', 'fewer than'. • Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). • Recite numbers past 5. • Say one number for each item in order: 1,2,3,4,5. • Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). • Show 'finger numbers' up to 5. • Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. 	<ul style="list-style-type: none"> • Count objects, actions and sounds. • Subitise. • Count beyond ten. • Compare numbers. • Understand the 'one more than/one less than' relationship between consecutive numbers. • Link the number symbol (numeral) with its cardinal number value. • Explore the composition of numbers to 10. <p>ELG</p> <ul style="list-style-type: none"> • Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5. • Verbally count beyond 20, recognising the pattern of the counting system • Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. 		<ul style="list-style-type: none"> • count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s • given a number, identify 1 more and 1 less • identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least • read and write numbers from 1 to 20 in numerals and words 	<ul style="list-style-type: none"> • count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward • recognise the place value of each digit in a two-digit number (10s, 1s) • identify, represent and estimate numbers using different representations, including the number line • compare and order numbers from 0 up to 100; use <, > and = signs • read and write numbers to at least 100 in numerals and in words • use place value and number facts to solve problems

<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Automatically recall number bonds for numbers 0–5 and some to 10. 	<p>ELG</p> <ul style="list-style-type: none"> • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally. 	<p>Number: Addition and Subtraction</p>	<ul style="list-style-type: none"> • read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs • add and subtract one-digit and two-digit numbers to 20, including 0 • represent and use number bonds and related subtraction facts within 20 • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$ 	<ul style="list-style-type: none"> • solve problems with addition and subtraction: • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and written methods • recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> a two-digit number and 1s a two-digit number and 10s 2 two-digit numbers adding 3 one-digit numbers • show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems
---	---	--	--	--	--

<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • compare numbers- share items evenly and use vocabulary of 'the same as' or 'equal to'. 	<p>Number: Multiplication and Division</p>	<ul style="list-style-type: none"> • solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher 	<ul style="list-style-type: none"> • recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs • show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts
<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	<p>Number: Fractions</p>	<ul style="list-style-type: none"> • recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity • recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity 	<ul style="list-style-type: none"> • recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity • write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

	<ul style="list-style-type: none"> • Make comparisons between two objects relating to size, length, weight and capacity. • Use language of longer, shorter, full and empty. 	<ul style="list-style-type: none"> • Compare length, weight and capacity and ask and answer simple questions using mathematical vocabulary e.g ... is heavier than... • Carry out simple tests and investigations. 	<p>Measurement</p>	<ul style="list-style-type: none"> • compare, describe and solve practical problems for: lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] mass/weight [for example, heavy/light, heavier than, lighter than] capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] time [for example, quicker, slower, earlier, later] • measure and begin to record the following: lengths and heights mass/weight capacity and volume time (hours, minutes, seconds) • recognise and know the value of different denominations of coins and notes • sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] • recognise and use language relating to dates, including days of the week, weeks, months and years • tell the time to the hour and half past the hour and draw the hands on a clock face to show these times 	<ul style="list-style-type: none"> • choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • compare and order lengths, mass, volume/capacity and record the results using >, < and = • recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value • find different combinations of coins that equal the same amounts of money • solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change • compare and sequence intervals of time • tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times • know the number of minutes in an hour and the number of hours in a day
--	---	--	---------------------------	--	---

	<ul style="list-style-type: none"> • Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'. • Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc. • Combine shapes to make new ones – an arch, a bigger triangle, etc. • Talk about and identifies the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc. • Extend and create ABAB patterns – stick, leaf, stick, leaf. • Notice and correct an error in a repeating pattern. • Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...' 	<ul style="list-style-type: none"> • Select, rotate and manipulate shapes in order to develop spatial reasoning skills. • Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. • Continue, copy and create repeating patterns. 	<p>Geometry: Properties of Shape</p>	<ul style="list-style-type: none"> • recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles] 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] 	<ul style="list-style-type: none"> • identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line • identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces • identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] • compare and sort common 2-D and 3-D shapes and everyday objects
--	---	--	---	--	--

	<ul style="list-style-type: none"> • Understand position through words alone – for example, “The bag is under the table,” – with no pointing. • Describe a familiar route E.g around the classroom. • Discuss routes and locations, using words like ‘in front of’ and ‘behind’ • Discuss routes and locations, using words like ‘in front of’ and ‘behind’. 		<p>Geometry: Position and Direction</p>	<ul style="list-style-type: none"> • describe position, direction and movement, including whole, half, quarter and three-quarter turns 	<ul style="list-style-type: none"> • order and arrange combinations of mathematical objects in patterns and sequences • use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)
			<p>Statistics</p>		<ul style="list-style-type: none"> • interpret and construct simple pictograms, tally charts, block diagrams and tables • ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • ask-and-answer questions about totalling and comparing categorical data

Vocabulary

	Nursery	Reception	Year One	Year Two
Number and Place Value	Numbers to 5 and beyond, more than, fewer than, count, count on, altogether, how many, order, numeral	As Nursery plus Subitise, numbers to 10 and beyond, notice, one more, one less, numbers, fewer, smaller, less, fewest, smallest, least, greatest, compare, greater, next, after, before, between, order, pattern, the same as, Hungarian model, rekenrek, tens frame	As Reception plus Numbers to 100, multiple, multiples, represent, partition, part-part-whole, forwards, backwards, number line, equal to,	As Year Two plus Count in steps, count on, count back, digit, numeral, estimate, column, place value, equivalent to, multiple of, bar model,
Addition and Subtraction		Recall, number bond, number sentence, add, more, make, total, altogether, double, subtract, take away, less, odd, even, equal, fewer, represent, fact, facts, part, whole	As reception plus Addition, subtractions, equals, how many more, how many less, part-part-whole, missing number, concrete, pictorial, abstract, commutative	As Year One plus Solve problems, mental strategy, tens boundary, partition, two-digit, one-digit, check, calculation, inverse
Multiplication and Division		Compare, share, equal groups	As Reception plus Multiplication, division, multiply, divide, multiplied by, divided by, lots of, groups of, twice, array, count up, fact family	As Year One plus Times table, row, column, multiple of, two-step, repeated addition, left over, remainder, repeated subtraction
Fractions			Recognise, half, halve, quarter, equal, parts, object, shape, amount, same as, different	As Year One plus Thirds, equivalent fractions, equivalence
Measurement	Compare, size, length, weight, capacity, full, empty, half full, almost full, nearly empty, long, longer, short, shorter, heavy, light, heavier, lighter	As Nursery plus Heaviest, lightest, shortest, longest, than,	As Reception plus Describe, time, quicker, slower, earlier, later, hours, minutes, seconds, before, after, next, first, today, yesterday, tomorrow, morning, afternoon, evening, days of the week, weeks, months, years, hour, half hour, minute, o'clock, half past	As Year One plus Metres, centimetres, kilogram, gram, degree centigrade, temperature, litres, millilitres, rulers, scales, thermometers, pounds, pence, value, money, change, notes, coins, intervals, quarter past, quarter to,
Geometry- Properties of Shape	Sides, corners, straight, flat, round, shape, circle, square, triangle, oblong, rectangle, pattern, repeating pattern, first, then, after that, finally	As Nursery plus Continue, copy, create,	As Reception plus Pentagon, hexagon, cone, cuboids, cubes, pyramids, spheres, triangular prism, edge, face, vertices,	As Year One plus Symmetry, vertical, horizontal, angle, right angle,
Geometry- Position and Direction	Under, in front,, behind, next to, on top, below, in, on,		As EYFS plus Whole, half, quarter, three quarter turns,	As Year One plus Rotation, clock wise, anticlockwise,
Statistics				Pictograms, tally chart, block diagram, table, category, categories, quantity, data, totalling, comparing,

