Maths Progression

Intent - At Larkfields Infant School, we strive to make maths fun, purposeful and accessible for all children. We intend on delivering a curriculum which:

- Gives each pupil a chance to believe in themselves as mathematicians and develop the power of resilience and perseverance when faced with mathematical challenges, to strive to **ACHIEVE** their potential.
- Engages all children and offers quality teaching and learning opportunities to all who **BELONG** in our school community.
- Allows children to be a part of creative, vocabulary rich lessons that will give them a range of opportunities to explore and **COMMUNICATE** as mathematicians following a mastery approach.

We aim for every child to develop a sound understanding of maths, equipping them with the skills of calculation, reasoning and problem solving that they need in life beyond school.

Concept	Foundation Stage	Year One	Year Two	Next steps
PLACE VALUE				
COUNTING	Count reliably with numbers from 1 to 20	count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number		Count backwards through zero to include negative numbers (Year 4)
	Count, read and write numbers from 1-20 in numerals	count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward	count from 0 in multiples of 4, 8, 50 and 100; (Year 3)
	Say the number which is one more or one less than a given number (within 20) given a number,	given a number, identify one more and one less	Find 1 or 10 more or less than a given number	Find 100 more or less (Year 3)
COMPARING NUMBERS		use the language of: equal to, more than, less than (fewer), most, least	compare and order numbers from 0 up to 100; use >, < and = signs	compare and order numbers up to 1000 (Year 3)

IDENTIFYING, REPRESENTING AND ESTIMATING NUMBERS	Recognise, create and describe patterns	identify and represent numbers using objects and pictorial representations including the number line	identify, represent and estimate numbers using different representations, including the number line	represent and estimate numbers using different representations (Year 3)
READING AND WRITING NUMBERS	Read and write numbers up to 10	read and write numbers from 1 to 20 in numerals and words.	read and write numbers to at least 100 in numerals and in words	read and write numbers up to 1000 in numerals and in words (Year 3)
UNDERSTANDING PLACE VALUE		Begin to recognise the place value of numbers beyond 20 (tens and ones)	recognise the place value of each digit in a two-digit number (tens, ones)	recognise the place value of each digit in a three digit number (hundreds, tens, ones)
PROBLEM SOLVING			use place value and number facts to solve problems	solve number problems and practical problems involving these ideas.
ADDITION AND SUBTRACTION				
NUMBER BONDS	Represent and use number bonds within 5	represent and use number bonds and related subtraction facts within 20	recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100	
MENTAL CALCULATION	Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer	add and subtract one digit and two-digit numbers to 20, including zero	add and subtract numbers using concrete objects, pictorial representations, and mentally, including: * a two-digit number and ones * a two-digit number and tens * two two-digit numbers * adding three one-digit numbers	add and subtract numbers mentally, including: * a three-digit number and ones * a three-digit number and tens * a three-digit number and hundreds (Year 3)
	Understand addition as combining two or more groups to make a larger group Understand subtraction as take away Begin to record number stories using number sentences	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs	show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot	use their knowledge of the order of operations to carry out calculations involving the four operations (Year 6)
WRITTEN METHODS	Understand addition as combining two or more groups to make a larger group Understand subtraction as take away Begin to record number	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation)		add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction (Year 3)

	stories using number sentences			
INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS			recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	estimate the answer to a calculation and use inverse operations to check answers
PROBLEM SOLVING	Begins to identify and solve own mathematical problems based on own interests and fascinations.	solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ____ - 9	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 solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change (copied from Measurement)	solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction (Year 3)
MULTIPLICATION AND DIVISION				
MULTIPLICATION & DIVISION FACTS		count in multiples of twos, fives and tens	count in steps of 2, 3, and 5 from 0, and in ten	count from 0 in multiples of 4, 8, 50 and 100
	Understand that doubling is adding the same number to itself and that it is multiplying by 2 Understand that halving is sharing into two equal portions and that this is dividing by 2	Recall and use doubles of all numbers to 10 and corresponding halves	recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
MENTAL CALCULATION			show that multiplication of two numbers can be done in any order (commutative) and division	recognise and use factor pairs and commutativity in mental calculations (Year 4)

WRITTEN CALCULATION			calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (Year 3)
PROBLEM SOLVING	Solve problems involving doubling, halving and sharing	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	solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects (Year 3)
FRACTIONS				
COUNTING IN FRACTIONAL STEPS			Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line (Non Statutory Guidance)	count up and down in tenths (Year 3)
RECOGNISING FRACTIONS	Understand that halving is sharing into two equal portions and that this is dividing by 2	recognise, find and name a half as one of two equal parts of an object, shape or quantity recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	recognise, find, name and write fractions 1 / 3 , 1 / 4 , 2 / 4 and 3 / 4 of a length, shape, set of objects or quantity	recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10. recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators (Year 3)
EQUIVALENCE			write simple fractions e.g. 1 / 2 of 6 = 3 and recognise the equivalence of 2 / 4 and 1 / 2 .	recognise and show, using diagrams, equivalent fractions with small denominators (Year 3)
MEASUREMENT				

COMPARING AND ESTIMATING	Use everyday language to talk about size, distance, weight, capacity and time. Use everyday language to compare quantities and objects	compare, describe and solve practical problems for: * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half] * mass/weight [e.g. heavy/light, heavier than, lighter than] * capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter] * time [e.g. quicker, slower, earlier, later]	compare and order lengths, mass, volume/capacity and record the results using >, < and =	estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring)
		sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]	compare and sequence intervals of time	compare durations of events, for example to calculate the time taken by particular events or tasks (Year 3)
MEASURING and CALCULATING		measure and begin to record the following: * lengths and heights * mass/weight * capacity and volume * time (hours, minutes, seconds)	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	measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) (Year 3)
	Use everyday language to talk about money	recognise and know the value of different denominations of coins and notes	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	add and subtract amounts of money to give change, using both £ and p in practical contexts (Year 3)

TELLING THE TIME	Use everyday language to talk about time	tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	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.	tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks (Year 3)
		recognise and use language relating to dates, including days of the week, weeks, months and years	know the number of minutes in an hour and the number of hours in a day.	estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., Morning, afternoon, noon and midnight (Year 3)
GEOMETRY - SHAPE				
IDENTIFYING SHAPES AND THIER PROPERTIES	Begin to use mathematical names for 'flat' 2-D shapes, and mathematical terms to describe shapes Select a particular named 2-D shape Begin to use mathematical names for 'solid' 3-D shapes, and mathematical terms to describe shapes Select a particular named 3-D shape	recognise and name common 2-D and 3-D shapes, including: * 2-D shapes [e.g. rectangles (including squares), circles and triangles] * 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].	identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line	identify lines of symmetry in 2-D shapes presented in different orientations (Year 4)
			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]	
COMPARING AND CLASSIFYING			compare and sort common 2-D and 3-D shapes and everyday objects	compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes (Year 4)
GEOMETRY – POSITION AND DIRECTION				
POSITION, DIRECTION AND MOVEMENT		describe position, direction and movement, including half, quarter and three-quarter turns	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)	describe positions on a 2-D grid as coordinates in the first quadrant describe movements between positions as translations of a given unit to the left/right and up/down
PATTERN	Recognise, create and describe patterns	Recognise and create repeating patterns with objects and shapes	order and arrange combinations of mathematical objects in patterns and sequences	

STATISTICS				
INTERPRETING, CONSTRUCTING AND PRESENTING DATA			interpret and construct simple pictograms, tally	interpret and present data using bar charts, pictograms 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	