

Progression in Mathematics

To save repetition of vocabulary, words are listed only where they are first introduced. For example, although the word 'sharing' is used throughout school, it is listed in Reception. Key vocabulary is revisited frequently as children progress through the curriculum.

	Nursery 3-4 Year olds will:	Reception	Year 1	Year 2	Year 3
Number and place value Declarative I know Procedural I can	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'). Compare quantities using language: 'more than', 'fewer than'. Show 'finger numbers' up to 5. Link numerals and amounts: for	Reception: Subitise. Link the number symbol (numeral) with its cardinal number value. Understand the 'one more than/one less than' relationship between consecutive numbers. Count objects, actions and sounds. Count beyond 10. Compare numbers. ELG: Have a deep understanding of number to 10, including the	I know how to count, read and write numbers to 100 in numerals; I know, when given a number, how to identify one more and one less. I know how to use the language of: equal to, more than, less than (fewer), most, least. I know how to identify and represent numbers using objects and pictorial representations including the number line. I know how to read and write numbers from 1 to 20 in numerals and words. I can count in multiples of twos, fives and tens.	I know how to compare and order numbers from 0 up to 100; using <, > and = signs. I know how to round two-digit numbers to the nearest 10. I know how to identify, represent and estimate numbers using different representations, including the number line. I know how to read and write numbers to at least 100 in numerals and in words. I know the place value of each digit in a two-digit number (tens, ones), using partitioning. I can count in steps of 2, 3 and 5 from 0, and in tens	To recognise the place value of each digit in a three-digit number (hundreds, tens, ones). To compare and order numbers up to 1000. To read and write numbers up to 1000 in numerals and in words. To count from 0 in multiples of 4, 8, 50 and 100; finding 10 or 100 more or less than a given number. To identify, represent and estimate numbers using different representations.

	example, showing the right number of objects to match the numeral, up to 5. Experiment with their own symbols and marks as well as numerals.	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; Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	I can count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.	from any number, forward or backward. I can use place value and number facts to solve problems.	
Key Vocab	amount, backwards, collection, count, few, fewer (than), forwards, how many, largest, lot(s), more (than), number, numeral, same, smallest, subitise Manipulatives e.g. animals, people, cubes Number cards	How many...?, count, number names, subitising Greater than/less than quantity None Before/after The same Odd/even Digit	compare, count on, digit, fewest, greater than, greatest, less than, most, one(s), order, partition, represent, ten(s), ordinal numbers (first, second, third, etc) Dienes, Unifix,	exchange, interval, least, multiple, value,	ascending, descending, hundred(s), part, whole

		order bead string, cubes/blocks, finger numbers, pictorial representations, numbers 0-10 with pictorial representations			
Addition and subtraction Declarative I know Procedural I can	I can solve real world mathematical problems with numbers up to 5	Reception: Explore the composition of numbers to 10. Automatically recall number bonds for number 0-10. ELG: 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.	I know how to represent and use number bonds and related subtraction facts within 20, with developing fluency. I know how to read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in written methods) and how to relate these to real life contexts including first, then and now stories. I can add and subtract one digit and two-digit numbers to 20, including zero. I can compose numbers to 10 from 2 parts, and partition number to 10 into parts, recognising odd and even numbers.	I know how to recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. I know that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. I know and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. I know the subtraction structure of difference and can use this to answer questions related to 'how many more/less'.	To add and subtract numbers mentally, including: A three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds. To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. To add and subtract numbers with up to three digits, using the efficient written methods of columnar addition and subtraction. To estimate the answer to a calculation and use

			I can solve one-stop problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$.	I can halve and double 2 digit numbers. I can cross the 10 to add and subtract. I can 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. I can solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures and applying their increasing knowledge of mental and written methods. I can solve simple problems in a practical context involving addition and subtraction of money of	inverse operations to check answers. To add and subtract amounts of money to give change, using both £ and p in practical contexts.
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				the same unit, including giving change.	
Key Vocab	More Less Not enough Too many Manipulatives e.g. animals, people, cubes	1 less, 1 more, add, add more, altogether, first, left, now, part, take away, whole Tens frames, double sided counters, objects, hoops, numbers 0 – 10 with pictorial representations, number cards, number tracks, hundred squares	addition, add together, subtraction/ subtract, difference, double, efficient, equal to, fact family, greater, group, inverse, less, minus, near double, number bond, plus, symbol, systematic, total, calculation Teacher modelled vocabulary: Addend, sum part-whole model	calculation, exchange, method, multiple, one(s), operation, partition, related facts, ten(s), value, increase, decrease, sum Teacher modelled vocabulary: Addend, minuend, subtrahend, expression, equation	column, addition, column, subtraction, digit, estimate, exchange, hundred(s), inverse, crossing the 10, cross the 100
Multiplication and division Declarative I know Procedural I can			I know how to count in multiples of twos, fives and tens. I can 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.	I know, can recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. I know that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. I can calculate mathematical statements for multiplication and division within the multiplication tables and write them using the	To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. To 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 methods and progressing to formal written methods.

				multiplication (x), division (÷) and equals (=) signs. I can solve problems including multiplication and division, using materials, arrays, repeated addition, grouping, mental methods, and multiplication and division facts, including problems in contexts.	To solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects. Knowing when to round the quotient up or round down with remainders. Explain the effect of multiplying by 10 and multiples of 10.
Key vocab		double, equal groups, even, fair, grouping, groups, odd, pair, sharing, unequal, groups hoops	array, divide, repeated, addition count in twos, threes, fives, count in tens, forwards, backwards, How many times? lots of, groups of, repeated addition, array, row, column, double, halve, share, share equally, group in ..	divide, even, half, lots of, multiply, odd, twice, times times-table,	commutative, inverse, multiple, product, remainder, scaling
Fractions Declarative I know			I know that a half is one of two equal parts of an object, shape or quantity.	I know, recognise, find, name and write fractions $\frac{1}{2}$ $\frac{1}{4}$ $\frac{3}{4}$ $\frac{1}{3}$ $\frac{2}{4}$ and / of a	To recognise, find and write fractions of a discrete set of objects: unit fractions and non-

Procedural I can			I know a quarter as one of four equal parts of an object, shape or quantity.	length, shape, set of objects or quantity. I can write simple fractions e.g. $\frac{1}{2}$ of 6 = 3 and recognise the simple equivalence.	unit fractions with small denominators. To recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. To compare and order unit fractions, and fractions with the same denominators. To solve problems that involve all of the above. To count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. To recognise and show, using diagrams, equivalent fractions with small denominators.
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					To add and subtract fractions with the same denominator within one whole ($5/7 + 1/7 = 6/7$).
Key Vocab		Whole Equal Half	numerator, denominator, equivalent, unit fraction, non-unit fraction, third, two-quarters, three-quarters	three quarters, one third, a third, equivalence, equivalent	scale, compare, convert
Measurement Declarative I know Procedural I can	Make comparisons between objects relating to size, length, weight and capacity. Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...' I am beginning to understand and talk about immediate past and future I can begin to anticipate times of the day such as mealtimes I can recall a sequence of events in everyday life and stories	Reception: Compare length, weight and capacity. I can begin to use measuring tools (timers and stopwatches) in everyday experiences and play I can order and sequence events using everyday language related to time I know that time can be measured with calendars (e.g. singing days of the week / months of the year song / discussing class calendar)	I know how to compare, describe and solve practical problems for: - Lengths and heights - 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). I know and recognise the value of different denominations of coins and notes.	I know the number of minutes in an hour and the number of hours in a day. I know how to choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); capacity (litres/ml) to the nearest appropriate unit using rules, scales, thermometers and measuring vessels. Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. I can compare and order lengths, mass, volume/capacity and	To measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). To measure the perimeter of simple 2D shapes. To tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. To 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

			I know how to tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. I know, recognise and use language relating to dates, including days of the week, weeks, months and years. I can sequence events in chronological order using language (e.g. before and after, next, first, today, yesterday). I can measure and begin to record the following: lengths and heights, mass/weight, capacity/volume and time (hours, minutes, seconds).	record the results using >, < and =. I can compare and sequence intervals of time. I can solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. I can 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.	vocabulary such as am/pm, morning, afternoon, noon and midnight. To know the number of seconds in a minute and the number of days in each month, year and leap year. To compare durations of events, for example to calculate the time taken by particular events or tasks. To add and subtract amounts of money to give change, using both £ and p in practical contexts.
Key Vocab	Bigger Smaller Longer Shorter Heavy Light Full Empty More Less	Length, weight, capacity, exactly, long, short, bigger than, smaller than, heavier than, lighter than, empty, full, half full, yesterday, tomorrow, day before, day after, first, then, after, every day, every evening, morning,	mass, weight, capacity, full, half full, empty, holds, container, weigh, weighs, balances, heavy, heavier, heaviest, light, lighter, lightest, scales, time, days of the week, seasons, day, week, month, year, weekend, birthday,	quarter past/to, five-minute intervals midnight, noon, quarter past, quarter to, metres, kilometre, m, km, grams, g, kilograms, kg, ml, millilitre, litres, l,	Convert Mm Perimeter analogue clock, 12-hour clock, 24-hour clock, digital clock duration, leap year, am, pm, roman numerals,

	First Then Now Yesterday Today Morning Evening Containers, cups, objects to compare Timetable	afternoon, evening, night-time, earlier, later, too late, too soon, in a minute, days of the week, seasons, birthday, Coins, containers, scales,	holiday, morning, afternoon, evening, night, midnight, midday, bedtime, dinnertime, playtime, today, yesterday, tomorrow, takes longer, takes less time, hour, o'clock, half past, hands, clock, watch, minutes, secondsHow long ago...? How long will it be to...? How long will it take to...? How often...? before, after, next, last, now, soon, early, late, quick, quicker, quickest, fast, faster, fastest, slow, slower, slowest, slowly, old, older, young, younger, youngest always, never, sometimes, usually, once, twice, first, second, third etc. estimate, close to, about the same, just over, just under, too many, too few, not enough, enough, width, depth, long, longer, longest, short, shorter, shortest, tall, taller, tallest, high, higher, highest low, wide, narrow, deep, shallow, thick, thin, far, close, near cm, ruler, metre stick How many...? How much...?	temperature, degrees, Celsius, circular scales, thermometer £ p change, cost, worth	
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			money, coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, change, dear, costs, cheaper, same as, total, value		
Geometry, shape, pattern and position Declarative I know Procedural I can	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'. Combine shapes to make new ones – an arch, a bigger triangle, etc. Understand position through words alone – for example, "The bag is under the table," – with no pointing. Discuss routes and locations, using words like 'in front of' and 'behind'.	Reception: 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 <i>within</i> it, just as numbers can. Continue, copy and create repeating patterns.	I know the name of common 2-D shapes, including: rectangles, squares, circles and triangles. I know the name 3-D shapes: cuboids, cubes, pyramids and spheres. I know how to describe position, direction and movement, including half, quarter and three-quarter turns. I can name and recognise common 2D and 3D shapes presented in different orientations.	I know how to recognise and describe the properties of 2-D shapes, including the number of sides and line of symmetry in a vertical line. I know how to recognise and describe the properties of 3D shapes, including the number of edges, vertices and faces. I know to 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). I can identify 2-D shapes on the surface of 3-D shapes,	To identify and describe the properties of 2D and 3D shapes, including the number of sides, symmetry in a vertical line, edges, vertices, and faces. To identify 2D shapes on the surface of 3D shapes, for example circle on a cylinder and a triangle on a pyramid. To compare and sort common 2D and 3D shapes and everyday objects. To recognise angles as a property of shape and associate angles with turning. To identify right angles, recognise that two right angles make a half-turn, three make three

	Talk about and identify 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. Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc. Describe a familiar route. Notice and correct an error in a repeating pattern.			(for example, a circle on a cylinder and a triangle on a pyramid). I can compare and sort common 2-D and 3-D shapes and everyday objects. I can order and arrange combinations of mathematical objects in patterns and sequences.	quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. To draw 2D shapes and make 3D shapes using modelling materials; recognise 3D shapes in different orientations and describe them with increasing accuracy. To identify horizontal, vertical, perpendicular and parallel lines in relation to other lines.
Key Vocab	Sharp Point Sides Corners Straight Flat Round Curvy Same Different	In, on, under, up, down, besides, between, over, above, below, circle, triangle, oblong, square, cube, pyramid, cuboid, cone, sphere, cylinder, side, corner, edge,	Properties, position, over, underneath, below, side, in, outside, inside, around, front, back, before, after, beside, opposite, apart, middle, journey, left, right, up, down, forwards, backwards, sideways, across, close, far, near, along, through, to, from, towards, away from,	rotation, clockwise, anti-clockwise, straight line, ninety degree turn, right angle, full turn size, bigger, smaller, larger, symmetrical, line of symmetry, fold, match, mirror line, reflection, pattern,	acute, obtuse, angle, vertical horizontal, parallel, perpendicular, polygon, right angle

	Off Down Under On top In On Up Next to Between Around Pattern after, line, next, pattern, spot, star, stripe, swirl, zigzag Blocks, shapes Shape puzzles Shape sorters Route story books e.g. Rosie's Walk Manipulatives e.g. leaves, blocks to create patterns	side, roll, turn, towards, away continue, copy, mistake, repeat, repeating, pattern, same, unit of repeat, 2D shapes, 3D shapes, tangram shapes	movement, slide, roll, turn, whole turn, half turn, left turn, right turn, quarter turn, stretch, bend group, sort, cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square, shape, flat, curved, straight, round, hollow, solid, edge, centre, corner, direction, point, pointed, make, build, draw, rotated, vertex, vertices, decreasing, increasing, sequence	repeating pattern, base, diagonal vertex, vertices	
Statistics Declarative I know Procedural I can				I know how to use lists/tables/diagrams to sort objects. I can interpret and construct simple pictograms, tally charts, block diagrams and simple tables. I can ask and answer simple questions by counting the number of	To interpret and present data using bar charts, pictograms and tables. To solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.

				objects in each category and sorting the categories by quantity. I can ask and answer questions about totalling and comparing categorical data.	
Key vocab				block diagram, key, pictogram, table, tally chart, collect, record	axis, bar chart, cell, horizontal axis, label, scale, two-way table, title, vertical axis,