Progression of Skills and Knowledge in Maths

	EYFS		KS1		LKS2		UKS2		KS3
	Nursery	**Reception**	**Yr1**	**Yr2**	**Yr3**	**Yr4**	**Yr5**	**Yr6**	
Topics	**Number:** Place value, addition and subtraction, multiplication and division, fractions, decimals, percentages, negative numbers, ratio, algebra **Geometry:** Shape, position and direction, **Measurement** Length and height, mass and volume, money, time, mass capacity and temperature, length and perimeter, area, converting units, volume **Statistics**								

Vocabulary	Zero, number, one, two, three … to twenty and beyond, teens numbers, eleven, twelve … twenty, none, how many …? count, count (up) to, count on (from, to), count back (from, to) count in ones, twos, fives, tens, is the same as, more, less odd, even, few, pattern, pair Place value Ones, tens, digit, the same number as, as many as, more, larger, bigger, greater, fewer, smaller, less, fewest, smallest, least, most, biggest, largest, greatest, one more, ten more, one less, ten less, compare, order, size first, second, third… twentieth, last, last but on, before, after, next, between Estimating guess how many …? Estimate, nearly, close to, about the same as, just over, just under, too many, too few enough, not enough Addition and Subtraction add, more, and, make, sum, total, altogether, double, one more, two more … ten more, how many more to make …? How many more is … than …? How much more is …? Take away how, many are left/left over? How many have gone? One less, two less, ten less … how many fewer is … than …? How much less is …? difference between Multiplication and division Sharing, doubling, halving, number patterns Fractions parts of a whole, half, quarter Measure Size, compare, guess, estimate, enough, not enough, too much, too little, too many, too few nearly, close to, about the same as, just over, just	Sort, group, number track, digit, pattern, one more, one less, matched, fewer, greater than (>), less than (<), equal to (=), most, least, fewest, greatest, number line, order, tens (10s), ones (1s), more, smallest, number bond, fact family, compare, 100 square, number square, place value grid. Group, plus, part-whole model, whole, part, number sentence, altogether, in total, add, count on, missing part, how many are left? in total, taken away, subtract, subtraction, addition, count backwards, How many more?,How many fewer?, difference. 3D, cube, cuboid, sphere, pyramid, cylinder, cone, 2D, circle, triangle, square, rectangle, face, repeated. Sort, group, number track, digit, pattern, one more, one less, matched, fewer, greater than (>), less than (<), equal to (=), most, least, fewest, greatest, number line, order, tens (10s), ones (1s), more, smallest, number bond, fact family, compare, 100 square, number square, place value grid. Group, plus, part-whole model, whole, part, number	Digit, tens, ones, place value grid, partition, more, fewer, fewest, greatest, smallest, partition. Fact family, number sentence, number bond, 10 more, 10 less, total, tens ones, subtract, difference, bar model, represent, how many are left?, in total, taken away, subtract, count backwards, How many more?, How many fewer?, difference. Quadrilateral, polygon, pentagon, hexagon, vertex, vertices, line of symmetry, symmetrical, octagon, edge, prism. Pound (£), pence (p), coin, note, change. Equal groups, multiplication (×), times-table, times, divide (÷), division, share, group, odd, even. Long, longer, longest short, shorter, shortest, tall, taller, tallest, length height, compare measure distance ruler centimetre. Measure, estimate. Mass, heavier than, lighter than, gram (g), hundreds, kilogram (kg), volume, millilitre (ml), litre (l), temperature, degrees Celsius (°C), thermometer. Whole, equal, equal parts, ½, fraction, denominator, fraction bar, numerator, ¼, ¾, third 1/3, unit fraction, non-unit fraction, equivalent. o'clock, half past, quarter past, quarter to, minute hand, hour hand, duration.	Hundreds (100s), tens (10s), ones (1s), digit, place value, more, less, greater than (>), less than (<), equal to, order, compare, partition, estimate, exchange, ascending, descending. Addition, subtraction, mental method, column method, exchange, estimate, approximate/ly, digit. Equal, multiply, divide, times-table, sharing, grouping, array, bar model, remainder, repeated addition, multiplication sentence, division statement, division fact, partition. Multiply (×), divide (÷), multiplication fact, division fact, lots of, groups of, times-table, array, partition, bar model, part-whole model, remainder, commutative. Length, height, width, perimeter, distance, centimetre (cm), millimetre (mm), metre (m), unit of Measurement, measure, equivalent, convert, greater than (>), less than (<), ruler, metre stick, Interval, scale. Mass, heavier than, lighter than, gram (g), hundreds, kilogram (kg), volume, millilitre (ml), litre (l). numerator denominator unit fraction non-unit fraction equivalent fraction halves quarters thirds fifths sixths	Tens, hundreds, thousands, rounding, order, more than (>), less than (<), partition, numeral, nearest, distance, ascending, descending, rounding, negative, step, multiple, greater than (>), less than (<). Addition, total, more than (>), subtraction, less than (<), column method, estimate, how much, strategy, efficient, accurate, exact, fact. Multiply (×), divide (÷), multiplication fact, division fact, lots of, groups of, times-table, array, partition array, bar model, part-whole model, remainder, factor pair, and factor, commutative. Length, width, area, distance, rectangle, square, rectilinear shape, centimetre (cm), metre (m), kilometre (km), equivalent to. Equal, multiply, divide, times-table, sharing, grouping, array, bar model, remainder, repeated addition, multiplication sentence, division statement, division fact, partition. Length, width, perimeter, distance, rectangle, square, rectilinear shape, centimetre (cm), metre (m), kilometre (km), equivalent to. Tenths, hundredths, equivalent, simplify, numerator, denominator, fraction, mixed number,	Ones (1s), tens (10s), hundreds (100s), thousands (1,000s), ten thousand (10,000s), hundred thousand (100,000s), million (1,000,000), round, order, ascending, descending, less than (<), greater than (>), sequence. Add, subtract, ones (1s), tens (10s) , hundreds (100s), thousands (1,000s), ten thousands (10,000s), mentally, inverse, round, estimate, sum. prime number, composite number, square number, cube number, square (2), cube (3), inverse operation, multiply, divide, multiple, factor, prime factor. Equivalent, numerator, denominator, whole, fraction, simplify, division, mixed number, convert, sequence, proper fraction, improper fraction, convert, common denominator, fraction of an amount. Equal, multiply, divide, times-table, sharing, grouping, array, bar model, remainder, repeated addition, multiplication sentence, division statement, division fact, partition, placeholder. Equivalent, numerator, denominator, whole,	Ones (1s), tens (10s), hundreds (100s), thousands (1,000s), ten thousands (10,000s), hundred thousand (100,000s), million (1,000,000), ten million (10,000,000), round, order, ascending, descending, less than (<), greater than (>), sequence, positive, negative. Column addition, column subtraction, estimate, multiplication, short division, long division, remainder, factor, estimate, common factor, common multiple, prime, composite, squared (2), cubed (3), order of operations, brackets, inverse operation. Equivalent, numerator, denominator, whole, fraction, simplify, division, mixed number, convert, sequence, proper fraction, improper fraction, convert, common denominator, fraction of an amount. Convert, metric unit, imperial unit, kilo, kilogram, gram, millimetre, centimetre, metre, kilometre, litre, millilitre, pound (lb), ounce (oz), inch (in), foot (ft), yard (yd), pint, gallon, stone (st), approximately. Ratio, proportion, scale, scale factor, proportionality.	

	under Length Metre, length, height, width, depth, long, short, tall, high, low, wide, narrow, thick, thin longer, shorter, taller, higher … and so on longest, shortest, tallest, highest … and so on far, near, close Weight weigh, weighs, balances, heavy, light, heavier than, lighter than, heaviest, lightest, scales Capacity and volume Full, empty, half, full, holds, container Time time days of the week, Monday, Tuesday … day, week birthday, holiday, morning, afternoon, evening, night bedtime, dinner time, playtime, today, yesterday, tomorrow, before, after, next, last, now, soon, early, late quick, quicker, quickest, quickly, slow, slower, slowest, slowly, old, older, oldest, new, newer, newest, takes longer, takes, less time hour, o'clock clock, watch, hands, money, coin, penny, pence, pound, price, cost, buy, sell spend, spent, pay Properties of shape,, pattern, flat, curved, straight, round, hollow, solid, sort, make, build, draw size, bigger, larger, smaller symmetrical pattern, repeating, pattern, match 2-D shape corner, vertex, side rectangle (including square) circle triangle 3-D shape face, curved surface, edge, vertex, vertices cube pyramid sphere cone, apex over, under, above, below, top, bottom, side, on, in, outside, inside, around, in front, behind, front, back,	sentence, altogether, in total, add, count on, missing part, how many are left?, in total, taken away, subtract, subtraction, addition, count backwards, How many more?, How many fewer?, difference. Sort, group, number track, digit, pattern, one more, one less, matched, fewer, greater than (>), less than (<), equal to (=), most, least, fewest, greatest, number line, order, tens (10s), ones (1s), more, smallest, number bond, fact family, compare, 100 square, number square, place value grid. Long, longer, longest short, shorter, shortest, tall, taller, tallest, length height, compare measure distance ruler centimetre. Measure, estimate. Heavier, heaviest lighter, lightest, full, empty, capacity, balance scales, weight, weigh, balanced, measure, estimate. Equal groups, array, row, column, double, twice, share. Half, halves, quarter Turn, half turn, quarter turn, three-quarter turn, whole turn, position, left right forwards backwards, above, below, top,	Pictogram, key, bar chart, scale, table, row, column, vertical axis, horizontal axis. Clockwise, anticlockwise, forwards, backwards, left, right, middle, turn, half turn, quarter turn, three-quarter turn.	eighths tenths decimal tenths Convert, total, difference, pound (£), pence (p), coin, note, change. Month, year, midnight, midday, am, pm, duration, estimate, consecutive, hour, minute, second, past, to, start, end, digital clock, analogue clock. right angle, acute, obtuse, parallel, perpendicular, vertical, horizontal, triangle, quadrilateral, kite, trapezium, rhombus, parallelogram, cuboid, triangular prism, square-based, pyramid, cone, cylinder, sphere, edge, face, vertices. Pictogram, key, bar chart, scale, table, row, column, vertical axis, horizontal axis.	improper fraction, simplest fraction, fraction of an amount, decimal point, equivalent decimal, 0·1 and 0·01, decimal place. Tenths, hundredths, equivalent, simplify, numerator, denominator, fraction, mixed number, improper fraction, simplest fraction, fraction of an amount, decimal point, equivalent decimal, 0·1 and 0·01, decimal place. Convert, total, difference, pound (£), pence (p), coin, note, change. Convert, compare, unit of time, second, minute, hour, day, week, month, year, 12-hour, 24-hour, analogue, digital, am/pm. Rectangle, square, rectilinear shape, unit, triangle, quadrilateral, reflection, regular, irregular, interior angle, angle, acute, obtuse, right angle. Data, line graph, pictogram, bar chart, table, altogether, more than (>), greatest, smallest, continuous data, compare. Reflection, position, horizontal, vertical, up, down, left, right, coordinates, square, rectangle, plot, vertex, vertices, point grid.	fraction, simplify, division, mixed number, convert, sequence, proper fraction, improper fraction, convert, common denominator, fraction of an amount. Decimal place, tenth, hundredth, thousandth, decimal point, place value, digit, fraction, per cent (%), percentage, one decimal place, two decimal places. Perimeter, distance, area, space, length, width, centimetre, square centimetre (cm2), metre square metre (m2), scale, compare, estimate. Graph, line graph, table, horizontal, vertical, two-way table, scale, axis/axes, data, plot/plotted, tallies/tally, digits. Angle, whole turn, right angle, acute angle, obtuse angle, reflex angle, degree (°), interior angle, clockwise, anticlockwise, orientation, parallel, perpendicular, right angle, interior angle, quadrilateral, regular, irregular, 3D shape, pyramid, sphere, cone, hexagon, pentagon, triangle Reflection, translation, vertex, vertices, coordinates, mirror line, horizontal axis, vertical axis, quadrant.	Sequence, rule, term, algebra, expression, calculation, formula, substitute, generalise, operation, calculate, equation, inverse, solution. Decimal place, tenth, hundredth, thousandth, decimal point, place value, digit, fraction, one decimal place, two decimal places. Decimal place, tenth, hundredth, thousandth, decimal point, place value, digit, fraction, per cent (%), percentage, one decimal place, two decimal places. Volume, solid, capacity, calculate, estimate, cube, perpendicular, right angle, perimeter, area, formula, base, height, cubic centimetres, cubic meters. Nets, 2D shapes, 3D shapes, interior angles quadrilateral, isosceles, scalene, right angled triangle, interior angles. Quadrant, four quadrants, translate, translation, x-axis, y-axis, axis/axes, horizontal, vertical, vertex, reflect, reflection. Mean, average, pie chart, segment, line graph, bar chart, percentage, fraction, data.	

	beside, next to, opposite, apart, between, middle, edge, corner, direction, left, right up, down, forwards, backwards, sideways, across, next to, close, near, far along, through to,	middle, bottom, up, down, in between. Sort, group, number track, digit, pattern, one more, one less, matched, fewer, greater than (>), less than (<), equal to (=), most, least, fewest, greatest, number line, order, tens (10s), ones (1s), more, smallest, number bond, fact family, compare, 100 square, number square, place value grid. Pound, pence, coin, note, pence (p). Before, after, yesterday, today Tomorrow, day, week, slower, faster, month, year. calendar Date, minute hand, hour hand, o'clock, half past, second, minute, hour				Decimal place, tenth, hundredth, thousandth, decimal point, place value, digit, fraction, per cent (%), percentage, one decimal place, two decimal places. Convert, metric unit, imperial unit, kilo, kilogram, gram, millimetre, centimetre, metre, kilometre, litre, millilitre, pound (lb), ounce (oz), inch (in), foot (ft), yard (yd), pint, gallon, stone (st), approximately. Volume, solid, capacity, calculate, estimate, cube.		

Number- Place Value	Counting numbers that start from 1 and go on sequentially. Look at a small number of objects and instantly recognise how many objects there are without needing to count. Compare amounts (which set has more)	Match, sort and compare amounts. Understanding the value of zero. Represent, count and compare 1, 2 and 3. Represent, count and comparing numbers to 5. Find one more and one less. Represent, count numbers: 6, 7 and 8. Compare numbers: 6, 7 and 8. Represent and count numbers 9 and 10. Compare numbers to 10. Explore number bonds to 10. Build numbers beyond 10. Count in patterns beyond 10. Visualise and build number patterns and relationships. Deepen understanding (patterns and relationships).	Place Value (within 10) Sort objects. Count objects to 10. Count objects from a larger group. Represent objects Recognise numbers as words. Count on from any number. Know that 1 more is the number after. Count backwards within 10. Know that 1 less is the number before. Compare groups by matching. Know how to compare numbers of objects. Compare numbers. Order objects. Know how to use a number line. Place value (within 10) Count and write numbers to 20. Numbers from 11 to 20:	Place Value (within 100) Consolidate numbers to 20 from Y1. Count objects to 100 by making 10. Know how to organise numbers onto a place value chart. Know how to use standard partitioning. Write numbers to 100. Write numbers to 100 in expanded form. Know the position of 10s on a number line. Know the numbers that lie between multiples of 10 on a number line. Estimate numbers on a number line. Compare objects to 100. Compare numbers to 100. Order objects and numbers. Count in 2s, 5s and 10s. Count in 3s.	Place Value (within 1000) Represent numbers to 100. Identify numbers on a line to 100. Understand that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10. Represent numbers to 1000. Partition numbers to 1000. Understand that numbers to 1000 can be partitioned in a variety of ways. Understand the structure of a number. Find 1, 10 or 100 more or less. Estimate on a number line to 1000. Compare numbers to 1000. Order numbers to 1000. Count in 50s.	Place Value (within 10,000) Represent numbers to 1000. Partition numbers to 1000. Know the exact position of numbers to 1000 on a number line. Know how to count in 1,000. Represent numbers to 10,000. Partition numbers to 10,000. Know how to partition numbers up to 10,000. Know that numbers up to 10,000 can be partition in a number of different ways. Find 1, 10, 100 or 1000 more or less. Label, identify and find missing values on blank or partially completed number lines (use real-life scales e.g. measuring jugs). Estimate on a number line to 10,000. Compare numbers to 10,000. Order numbers to 10,000. Know that L represents 50 and C represents 100. Understand that the Roman system does not	Identify Roman numerals to 1000 Recognise the ten-thousand column on a place value chart. Understand the multiples of 10,000. Recognise the pattern for thousands in a place value chart. Read and write numbers to 1,000,000. Understand the relationship between different numbers in different place value columns. Know how to use powers of 10 to count forwards and backwards. Partition numbers to 1,000,000. Label, identify and find missing values on blank or partially completed number lines for numbers up to 1 million. Compare and order numbers to 100,000. Compare and order numbers to 1,000,000. Round to the nearest 10, 100 or 1000. Round within 100,000. Round within 1,000,000. Negative numbers Understand negative numbers. Count through zero in 1s.	Numbers to 10,000,000 Understand the place value of all numbers to 10,000,000. Know the structure of how numbers to 10,000,000 are said and written. Identify integers that are 10, 100, 1,000 times the size, or one-tenth, one-hundredth, one-thousandth the size of other integers. Label, identify and find missing values on blank or partially completed number lines for numbers up to 10 million. Compare and order any integers. Round any integer. Understand how negative numbers are used in real life contexts.	Use place value, including for decimals, measures and for any size of integers, the language of larger and smaller numbers, and ordering numbers, including the correct use of =, ≠, , ≤, ≥

			Know that every number from 11 to 19 has ‘1 ten and some ones’. Count one more and one less. Compare groups of objects. Compare numbers to 20. Order groups of objects. Order numbers (to 20). Place value (within 50) Know how to count forwards and backwards within 50. Understand how numbers within 50 are made of tens and ones. Represent numbers to 50. Identify one more and one less Compare objects within 50. Compare numbers within 50. Order numbers within 50. Place value (within 50) Count to 100. Partition numbers to 100. Compare numbers using			have a zero and does not use placeholders. Round to the nearest 10. Round to the nearest 100. Round to the nearest 1000. Round to the nearest 10, 100 or 1000.	Count through zero in multiples. Compare and order negative numbers. Find the difference.		

			inequality symbols. Order numbers to 100. Know how to find one more and one less than any number to 100.						

Number - Addition and Subtraction	Explore composition- whole in parts and parts into whole. Show understanding that a group of objects can be called a whole and that all parts make a whole. Understand that the whole is the bigger part. Understand numbers to what they are seeing e.g. Fruit kebabs "I've got two pieces of banana and two strawberries; the whole is four." Start applying numbers to what they are seeing e.g. There are 2 cows in this field and 2 cows in this field, the whole number of cows is 4.	Make 1, 2 and 3 in different ways (composition). Make 4 and 5 in different ways (composition). Combine two amounts. Make pairs. Add more and take away. Use reasoning to explain when something is correct or incorrect.	**Addition and Subtraction within 10.** Know that a whole group of objects can be composed of two or more parts and that they can represent this using a part-whole model. Write number sentences. Know how fact families and the part-whole model help us calculate number bonds within 10. Know how to work systematically to find all number bonds within 10. Understand that addition can mean bringing two or more parts together to create a whole. Understand that adding more can mean increasing one quantity by a given amount. Know how their knowledge of number bonds can help them find missing parts of the whole. Recognise the subtraction symbol and know that subtraction is	**Addition and subtraction.** Know how to calculate number bonds within 20. Understand how their knowledge of number bonds to 10 can help them solve related facts. Know how to use their knowledge of bonds to 10 and related facts to find bonds to 100. Know how to add and subtract 1 from any given number. Know how to use their number bonds to 10 to make numbers within 20. Know that to add three numbers, you just need to add two of them and then add the third to the answer. Add to the next 10. Add across a 10. Subtract across 10. Subtract from a 10. Subtract a 1-digit number from a 2-digit number (across a 10). Find the difference (2-digit numbers). Know how to find 10 more or 10 less than a given number within 100. Add and subtract 10s. Add two 2-digit numbers (not across a 10). Add two 2-digit numbers (across a 10).	**Addition and subtraction.** Apply number bonds to 10 (consolidation). Add and subtract 1s. Add and subtract 10s. Add and subtract 100s. Spot patterns when subtracting 1s, 10s and 100s from 3-digit numbers. Add 1s across 10. Add 10s across 100. Subtract 1s across 10. Subtract 10s across 100. Make Connections. Add two numbers (no exchange). Subtract two numbers (no exchange). Add two numbers (across a 10). Add two numbers (across a 100). Subtract two numbers (across a 10). Subtract two numbers (across a 100). Add 2 digit and 3-digit numbers. Subtract a 2-digit number from a 3-digit number. Find the difference (3-digit numbers). Estimate answers.	**Addition and subtraction.** Add and subtract 1s, 10s, 100s and 1000s. Use the column method to add up to two 4-digit numbers – no exchange. Use column method to add two 4-digit numbers – one exchange. Add two 4-digit numbers with more than one exchange. Subtract two 4-digit numbers – no exchange. Subtract two 4-digit numbers – one exchange. Subtract two 4-digit numbers – more than one exchange. Find the difference (4-digit numbers). Know which methods are the most appropriate for a given calculation. Estimate answers. Understand how to use inverse operations to check addition and subtraction calculations.	**Addition and subtraction.** Add whole numbers with more than four digits (column addition). Subtract whole numbers with more than four digits (column subtraction). Round to check answers. Use the inverse operations (addition and subtraction). Solve multi-step addition and subtraction problems. Compare calculations. Find missing numbers.	**The four operations** Add and subtract integers. Identify the highest common factor of any given numbers. Identify the lowest common multiple of any given numbers. Know that a number is divisible by 2, 5 or 10 by looking at the ones digit. Know that a number is divisible by 4 if halving the number leaves an even number and link this to the corresponding rule for 8. Know that a 2-digit number is divisible by 11 if the digits are the same. Identify all the prime numbers to 100 and recall the primes to 19. Know how to identify the prime factors of a given number. Remember the notations for squared and cubed numbers. Know that a square of cube number is the result of the multiplication. Multiply up to a 4-digit number by a 2-digit number. Solve problems with multiplication. Use the formal written method of long	Recognise and use relationships between operations including inverse operations Use the four operations, including formal written methods applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative Understand and use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals

			about finding the part. Understand that there are 8 facts in a fact family. Know that subtraction means taking away. Know how to use counting back on a number line to solve subtraction calculations. Number: Addition and subtraction (within 20) Add by counting on Find and make number bonds to 20. Add by making 10. Recognise and use the subtraction symbol within 20. Know how to use partitioning to subtract. Understand the different structures of subtract (take away, partitioning, difference). Know that addition and subtraction are inverse operations.		Understand the inverse relationship between addition and subtraction and how this relates to the part-whole structure.			division to divide 3- and 4- digit numbers by 2-digit numbers (no remainders). Use the formal written method of long division to divide 3- and 4- digit numbers by 2-digit numbers (remainders). Understand how to interpret remainders in context. Solve multi-step problems. Follow the order of operations. Know that estimations are a 'sense-check' before or after the calculation and should be done mentally. Reason from known facts.	

			Know how to use inequality symbols to compare number sentences within 20.						

Number- Multiplication and Division		Double a number. Share and group items. Use reasoning to explain when something is correct or incorrect.	Count in 2s, 5s and 10s. Make equal groups. Add equal groups. Make arrays. Make doubles. Make equal groups grouping. Make equal groups sharing.	Recognise equal groups. Make equal groups. Add equal groups. Use arrays – Understand the commutativity of multiplication facts. Make doubles. Understand the structure of the 2x table. Understand the structure of the 5x table. Understand the structure of the 10x table. Recognise the division symbol and know that division can mean sharing into equal groups. Divide by 2. Recognise odd and even numbers. Divide by 5. Divide by 10.	Use arrays. Know that multiples of 2 are numbers that can be divided into two equal groups. Know that a whole number is a multiple of 5 if the ones digit is either 5 or 0 and that a whole number is a multiple of 10 if the ones digit is 0. Recognise the link between counting in 3s, repeated addition and multiplication. Know that dividing by 3 means sharing into 3 equal groups or grouping into 3s. Understand the structure of the 3x table and derive unknown facts from known facts. Know that multiplying by 4 is the same as doubling and doubling again. Know that dividing by 4 means sharing into 4 equal groups and grouping into 4s. Understand the structure of the 4x table and derive unknown facts from known facts. Know how the 4 times table can help them multiply by 8 by doubling its equivalent multiply of 4. Know that dividing by 8 means sharing into 8 equal groups and grouping into 8s.	Multiply and divide by 6. Understand how to use known facts to times and divide by 6. Recognise patterns to help them solve the 9 times table. Understand how to use known facts to times and divide by 9. Recognise links between the 3, 6 and 9 times-tables. Multiply and divide by 7. Recall 7 times table and division facts. Know that they can partition 11 into 10- and 1-times tables to find x11. Know that they can partition into 12 into 10- and 2-times tables to find x12. Know that when you multiply a number by 0, the result will always be 0. Know that when you divide a number by 1 the answer will be itself and when dividing a number by itself the answer will be 1. Know that, when multiplying three numbers, we follow the associative law. Know the multiplication and division facts related to the 11- and 12-times tables.	Multiples and common multiples. Factors and common factors. Prime numbers, square numbers, cube numbers. Multiply and divide by 10, 100 and 1,000. Multiples of 10, 100 and 1,000. Multiply 4 digits by 1 digit. Multiply 2 digits by 2 digits (use area model and grid method). Multiply 3 digits by 2 digits. Multiply 4 digits by 2 digits. Short division Divide 4 digits by 1 digit. Divide with remainders. Solve problems with multiplication and division.	Multiply multi- digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context Use their knowledge of the order of operations to carry out calculations involving the four operations to solve problems involving multiplication and division. Identify common factors, common multiples, and prime numbers	Know and use prime numbers, common factor and common multiples for whole numbers with two and three digits 2. Recognise and use relationships between operations including inverse operations 3. Use the four operations, including formal written methods applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative. Understand and use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals.

					Understand the structure of the 8x table and derive unknown facts from known facts. Know the connections between the 2, 4 and 8 times tables. Use knowledge of multiplication and division to compare statements using inequality symbols. Know how to use known multiplication facts to solve known facts. Multiply 2-digits by 1-digit using the grid method. Use short multiplication to multiply 2 digits by 1 digit (with exchange). Divide 2 digits by 1 digit (no exchange). Divide 2 digits by 1 digit (with exchanges). Divide 2 digits by 1 digit with remainders. Know that scaling means how many times bigger or smaller an amount/object is. Know how to systematically list the possible combinations resulting from two groups of objects.	Understand the 'Associative Law' in relation to multiplying three numbers. Know that a factor is a number that multiplies by another number to make a produce. Know that there are different ways to multiply including partitioning. Use short multiplication to multiply a 2-digit number by a 1-digit number (exchange). Know how to use short multiplication to multiply a 3-digit number by a 1-digit number (exchange). Know how to divide 2-digit numbers by 1-digit using chunking on a number line. Know how to divide 2-digit numbers by 1-digit using short division. Divide a 3 digit number by a 1 digit number. Solve problems involving correspondence. Factor pairs. Multiply and divide by 10. Multiply and divide by 100. Related facts-multiplication and division. Informal written methods for multiplication.			

Number- Fractions			Find a half. Find a quarter.	Make equal parts. Recognise half. Find half. Recognise a quarter. Find a quarter Recognise a third. Find a third. Understand the concept of a unit fraction by recognising it as one equal part of a whole. Know that the denominator represents the number of parts that a shape or quantity is split into. Recognise the non-unit fractions 2/3 and ¾. Know that the numerator and denominator are the same when the fraction is equivalent to one whole. Know that ½ and 2/4 are the same. Understand ¾ by using their knowledge of quarters. Understand that fractions can be greater than 1.	Understand the denominators of unit fractions. Compare and order unit fractions. Understand the numerators of non-unit fractions. Understand the whole. Compare and order non-unit fractions. Explore and fractions and scales. Identify fractions on a number line. Count in fractions on a number line. Identify equivalent fractions on a number line. Identify equivalent fractions as bar models. Make the whole. Find tenths. Count in tenths. Find a tenth as a decimal. Identify fractions on a number line. Find fractions of a set of objects. Identify equivalent fractions. Compare fractions. Add fractions.	Recognise fractions in different contexts. Recognise equivalent fractions using a fractions wall. Understand how to find equivalent fractions using proportional reasoning. Know that fractions greater than 1 can be partitioned into parts and wholes. Understand how fractions greater than 1 can be represented on a number line. Understand the connection between improper fractions and mixed numbers. Add 2 or more. Subtract 2 fractions. Know how many equal parts are equivalent to a whole. Know that we divide by the denominator and multiply by the numerator when finding fractions of amounts. Calculate fractions of a quantity.	Find fractions equivalent to a unit fraction. Find fractions equivalent to a non-unit fraction. Recognise equivalent fractions. Convert improper fractions to mixed numbers. Convert mixed numbers to improper fractions, Compare fractions less than 1. Order fractions less than 1. Compare and order fractions greater than 1. Add and subtract fractions with the same denominator. Add fractions within 1. Add fractions with total greater than 1. Add to a mixed number. Add two mixed numbers. Subtract fractions. Subtract from a mixed number. Subtract from a mixed number by breaking the whole. Subtract two mixed numbers. Multiply unit fractions by an integer.	Recognise when fractions are, and are not, in their simplest form using knowledge of equivalent fractions. Know that when the numerator and denominator have no common factors greater than 1, the fraction is in its simplest form. Use number lines to count forwards and backwards in fractions and to find equivalent fractions. Compare and order (denominator) Compare and order (numerator). Add and subtract simple fractions. Add and subtract any two fractions. Add mixed numbers. Subtract mixed numbers. Solve multi-step problems. Multiply mixed numbers by integers. Multiply the numerators by each other and the denominators by each other. Divide a fraction by an integer. Divide any fraction by an integer. Understand that the denominator.	Compare, order and convert between fractions and decimals. Interpret percentages and percentage change as a fraction or a decimal. Find fractions and percentages of an amount. Solve problems with fractions greater than 1 4. explore over 100%. Express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1. Understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction. Relate the language of ratios and the associated calculations to the arithmetic of fractions and to linear functions.

							Multiply non unit fractions by an integer. Multiply mixed numbers by integers. Find fractions of an amount. Use fractions as operators.		

Geometry	Fit shapes into board puzzles. Begin to explore block play. Know how to use small world play to experiment with shape and size. Combine shapes to make new ones – an arch, a bigger triangle etc. Explore the properties of 2D shapes – curved/straight sides. Identify shapes in the environment. Make meaningful pictures and arrangements with shapes. Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. Talk about and explore 2D and 3D shapes (for	Explore patterns. Explore positional language. Shapes- explore circles and triangles. Explore shapes with four sides. Explore and compare 3D shapes. Explore spatial awareness. Create patterns using shapes and colours. Use reasoning to explain when something is correct or incorrect. Match, rotate and manipulate. Compose and decompose shapes.	**Shape** Recognise and describe 3D shapes. Sort 3D shapes. Recognise and name 2D shapes. Sort 2D shapes. Create patterns with 2D and 3D shapes. Position and Direction Describe turns. Describe Position (use the language 'left', 'right', 'forwards' and 'backwards'). Know and use the language 'top', 'in between', 'bottom', 'above' and 'below' to describe position.	**Shape** Recognise 2D and 3D shape (Year 1 recap). Count sides on 2D shapes. Count vertices on 2D shapes. Draw 2D shapes. Use lines of symmetry to complete shapes. Sort 2D shapes. Count faces on 3D shapes. Count edges on 3D shapes. Count vertices on 3D shapes. Sort 3D shapes. Make patterns with 2D and 3D shapes.	**Shape** Recognise angles as a measure of a turn. Make ½, ¼, ¾, and full turns from different stating points. Recognise different turns (including whole turn). Compare angles. Draw straight lines accurately in cm. Know that a horizontal line runs from left to right and a vertical line runs up and down. Know that straight lines that meet at a right angle are called perpendicular and lines that never meet are called parallel. Recognise and describe 2D shapes. Recognise and describe 3D shapes. Make 3D shapes.	**Shape** Know that area is the amount of space taken up by a 2-D shape or surface. Understand that there are a range of ways to find the area of shapes or surfaces. Know the strategy of counting the number of squares inside a shape to find its area. Know that a rectilinear shape is a shape that has only straight sides and right angles. Compare the areas of rectilinear shapes where the same size square has been used. Understand and describe different angles. Compare and order angles. Understand and describe different types of triangles. Know that a square, rectangle, rhombus, parallelogram and trapezium are all quadrilaterals. Describe and compare and compare properties. Complete a symmetric figure. **Position and Direction** Describe position. Draw on a grid. Move on a grid.	**Shape** Measure angles in degrees. Measure with a protractor. Draw lines and angles accurately. Calculate angles on a straight line. Calculate angles around a point. Calculate lengths and angles in shapes. Know that 'regular' means all sides and angles are equal. Identify 3D shapes from 2D representations. **Position and direction** Understand that the coordinates (0,0) is called the origin. Know that the first number represents the x-axis and the second number represents the y-axis. Know that coordinates are fixed and cannot be moved. Translate shapes on a grid. Know how to translation coordinates, describe their position and describe the translation. Reflect 2D shapes across a plane. Reflect shapes on a coordinates grids.	**Properties of Shapes** Measure with protractor. Calculate angles. Know that interior angles in a triangle equal 180 degrees. Calculate missing angles in right angled and isosceles triangles. Know that hatch marks represent equal sides/angles. Use their knowledge of angles to find angles in a triangle. Know that angles in quadrilaterals always equal 360 degrees. Draw shapes accurately. Know that a net is a 2-D figure that can be folded to create a 3-D shape. Identify 3-D shapes from their nets. **Position and Direction** Plot and read coordinates in the first quadrant. Read and plot coordinates in all four quadrants. Translate shapes in all four quadrants. Reflect shapes in all four quadrants and in the x and y axis.	Solve problems involving perimeter and area of triangles parallelograms, triangles and trapeziums and composite shapes. Solve problems involving surface area and volumes of cubes and cuboids. Solve perimeter and area problems. Work with coordinates in all four quadrants Recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane.

	example – circles, rectangles, triangles, and cuboids) using informal and mathematical language: 'sides', corners', 'straight', 'and flat'. Recognise and describe repeating patterns (colour and shape). Discuss routes and locations, using words like 'in front of' and 'behind' Understand position through words alone – "The bag is under the table".					Describe a movement on a grid.	Know what happens to coordinates when reflected.		

Measurement	Fill and empty containers. Make comparisons between objects relating to size. Understand the daily routine and what is happening next. Make comparisons between objects relating to length. Understand the concept 'now' and 'next'. Combine shapes to make new ones – an arch, a bigger triangle etc. Make comparisons between objects relating to weight. Make comparisons between objects relating to size, length, weight and capacity	Compare size, mass and capacity. Explore time. Explore and compare length and height. Use reasoning to explain when something is correct or incorrect. Match, rotate and manipulate.	**Time** Know how to use language such as 'before, 'after', 'morning', 'afternoon' and 'evening' to describe, sort and order events. Know the days of the week and that there are 7 days in a week. Know the months of the year and know 'about them'. Tell the time to the hour. Tell the time to half an hour. Write the time. Compare time.	**Money** Count money (pence). Count money (pounds). Count money (notes and coins). Understand how to make an amount by selecting the correct coins. Make the same amount. Compare money. Find the total Find the difference. Find change. **Length and Height** Measure length (cm). Measure length (m). Compare lengths. Order lengths. Use the four operations to solve problems involving length. **Mass, Capacity and Temperature** Measure and compare mass. Measure mass in grams and kilograms. Measure capacity. Compare volume. Use millilitres (ml) as a standard unit to measure capacity. Use litres as a standard unit to measure capacity. Know that temperature is the measure of how hot or cold something is. Know that temperature is measured in degrees centigrade, and we use a thermometer to measure temperature.	**Length and Perimeter** Understand millimetres in relation to centimetres and metres. Know that 100cm is equivalent to 1m. Know that 10mm is equivalent to 1cm Compare m, cm and mm, recognising equivalents. Recognise that converting lengths to the same unit is a more efficient method to add lengths. Know how to use finding the difference to subtract lengths. Know that perimeter is the distance around the outside of a 2D shape. Know that we calculate the perimeter of a 2D shape by adding all the lengths of the sides together. Money Understand that money can be represented in different ways but still have the same value. Convert pounds and pence. Add money. Subtract money. Give change. Time Know that there are 365 days in 1 year. Know that there are 12 months in 1 year; Know that a lead year occurs every 4 years and there are 366 days in a leap year. Know that there are 7 days in 1 week.	**Length and perimeter** Know that a rectilinear shape are shapes where all sides meet at a right angle. Understand that there are different ways to calculate the perimeter of rectangles. Understand how to calculate the perimeter of rectilinear shapes. Money Understand pounds and pence and use decimal notations to represent this. Order amounts of money. Use rounding to estimate money. Know how to solve problems involving money, using their understanding of the four operations. Mass and Capacity Measure mass. Compare mass. Add and subtract mass. Measure capacity. Compare capacity. Add and subtract capacity. **Time** Convert between units of time. Convert between analogue and digital using a 12-hour format. Use am and pm to distinguish between morning and afternoon.	**Area and perimeter** Measure perimeter Know that the formula to calculate the area of a rectangle is length multiplied by width. Calculate the area of compound shapes. Calculate the area of Irregular shapes. Converting Units Convert between g and kg; Know that 'kilo' means a thousand. Convert between ml and l and mm and m. Convert between different units of metric measure. Use approximate equivalences between metric units and common imperial units such as inches, pounds (lbs) and pints. Convert units of time. Know how to use a number line to solve problems relating to time. **Volume** Know that volume is the amount of solid space something takes up. Compare volume. Estimate volume. Estimate capacity.	**Converting Units** Recognise, read and write all metric measures for length, mass and capacity. Know that tonnes are a way of measuring mass and that 1000kg is equal to 1 tonne. Convert between metric measures for length and mass. Know how to convert between metric measures for capacity. Calculate with metric measures. Know that 5 miles is roughly equivalent to 8km. Know that 1 mile is greater than 1km. Know 1 inch is roughly equivalent to 2.5cm; 1 foot = 12 inches; 1 pound = 16 ounces; 1 stone = 14 pounds; 1 gallon = 8pints. **Perimeter, Area and Volume** Know how to find and draw rectilinear shapes with the same area. Know how to find the area and perimeter of rectilinear shapes. Understand how to use formula to help find the area and perimeter of rectilinear shapes.	Change freely between related standard units [for example time, length, area, volume/capacity, mass]. Use mass, length, time, money and other measures, including with decimal quantities. Solve problems involving perimeter and area of triangles; surface area and volumes of cubes and cuboids. Solve perimeter and area problems. Convert metric units.

				Time Read and draw the times ‘quarter past’ and ‘quarter to’. Read and show analogue time to 5-minute intervals. Know that there are 24 hours in a day and 60 minutes in an hour. Identify the start and end time of an event. Compare time using ‘longer’ and ‘shorter’ and order these events.	Remember that there are 24-hours in a day. Remember the days of the week. Use language like ‘midday’, ‘noon’ and ‘midnight’. Know how to tell the time to the nearest 5 minutes on an analogue clock. Recognise and use Roman numerals on a clock face. Tell the time to the minute. Understand the language of ‘morning’, ‘afternoon’, ‘a.m.’ and ‘p.m.’ to describe the time of day. Tell the time using digital clocks. Find and compare the duration. Find start and end times to the nearest minute using analogue and digital times. Measure time in seconds.	Understand that digital time needs to be written in a four-digit format. Convert between analogue and digital clocks using 24 hour clock.		Know how to estimate the area of a triangle by counting squares. Know that the area of a right angled triangle is half the area of rectangle. Know that we can use the formula base x perpendicular height then divide by 2. Know that the formula to find the area of a parallelogram is base x perpendicular height. Know how to find the volume of shapes by counting cubic units. Know that the formula to find the volume of cubes and cuboids is base x height x depth.	

Statistics				Make tally charts. Draw pictograms. Interpret pictograms. Draw and interpret block diagrams.	Know the value of the symbols used in pictograms. Read and interpret bar charts with scales of 1, 2, 5 and 10. Know which scale to use when drawing own bar charts. Know how to interpret information from tables.	Interpret charts. Remember how to interpret data from pictograms, bar charts and tables. Collect data and present this on a bar chart. Ask and answer questions about the data they have collected. Know how to solve comparison, sum and difference problems using discrete data with a range of scales. Know that line graphs are used to present continuous data. Solve comparison, sum and difference problems.	Read and interpret line graphs. Draw line graphs. Solve comparison, sum and difference problems in relation to line graphs. Read and interpret tables. Interpret information from tables which contain two sets of data. Extract information from timetables and solve problems relating to time.	Read and interpret line graphs. Draw line graphs. Use line graphs to solve problems. Identify the circumference, diameter and radius is. Know that radius is always half the diameter. Read and interpret pie charts. Draw pie charts. Know the formula to calculate mean.	Describe simple mathematical relationships between two variables in observational and experimental contexts Identify appropriate questions, data collection, presentation and interpretation to conduct exploratory data analysis.

Decimals and percentages						**Decimals** Make a whole. Write decimals. Compare decimals. Order decimals. Round decimals. Know that ½ is 0.5, ¼ is 0.25 and ¾ is 0.75. **Fractions, Decimals and Percentages** Recognise tenths and hundredths. Recognise the relationship between 1/10 and 0.1. Know that tenths are to the right of the decimal point. Know how to read and interpret tenths on a number line. Divide 1 digit by 10. Divide 2 digits by 10. Know that hundredths arise when dividing 1 whole into 100 equal parts. Recognise that 10 hundredths is a tenth. Recognise the relationship between 1/100 and 0.01. Know that hundredths are to the right of the decimal point and tenths column . Divide 1 or 2 digits by 100.	**Decimals and Percentages** Understand the value of numbers with two decimal places. Understand the link between decimals and fractions. Convert between fractions and decimals with numbers greater than 1. Understand thousandths. Represent thousandths as decimals. Round decimals. Order and compare decimals. Understand percentages. Know how to represent percentages as fractions using the denominator 100. Convert Equivalent F.D.P. **Decimals** Add decimals within 1. Subtract decimals within 1. Recognise the links between complements to 1 and number bonds to 10, 100 and 1000. Add decimals crossing the whole. Add decimals with the same number of decimal places.	**Decimals** Understand the value of all digits in numbers with three decimal places. Multiply by 10, 100 and 1,000. Divide by 10, 100 and 1,000. Multiply decimals by integers. Divide decimals by integers. Use division to solve problems. Convert decimals to fractions. Know the common fractions, such as thirds, quarters, fifths and eighths, as decimals. **Fractions, Decimals and Percentages** Remember that 'per cent' means out of 100. Convert fractions to equivalent fractions where the denominator is 100 in order to find the percentage equivalent. Convert equivalent FDP. Remember how to find 1%, 5%, 10% and 50%. Know how to find any percentages of any amount.	Compare, order and convert between fractions and decimals. Interpret percentages and percentage change as a fraction or a decimal. Find fractions and percentages of an amount. Use mass, length, time, money and other measures, including with decimal quantities. Solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics.

						Make a whole. Write decimals. Compare decimals. Order decimals. Round decimals. Know that ½ is 0.5, ¼ is 0.25 and ¾ is 0.75.	Subtract decimals with the same number of decimal places. Add decimals with a different number of decimal places. Subtract decimals with a different number of decimal places. Add and subtract whole and decimals. Recognise patterns in decimal sequences. Understand that the next part of the sequence is called a 'term'. Multiply decimals by 10, 100 and 1000. Divide decimals by 10, 100 and 1,000.		
Ratio								Use ratio language. Calculate ratio. Know that 'similar' in maths means that one shape is an exact enlargement of the other. Solve ratio and proportion problems.	Use ratio notation, including reduction to simplest form. Divide a given quantity into two parts in a given part: part or part: whole ratio; express the division of a quantity into two parts as a ratio. Understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction. Relate the language of ratios and the associated calculations to the arithmetic of fractions and to linear functions.

Algebra								Find a rule one step and find a rule two step –Use an algebraic rule. Know that substitution is where we replace numbers with letters or symbols. Substitute into simple expressions to find a particular value. Substitute into simple formulae. Solve simple one step equations. Solve two step equations. Find pairs of values	Substitute numerical values into formulae and expressions, including scientific formulae. Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors. Simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms, multiplying a single term over a bracket, taking out common factors, expanding products of two or more binomials. Understand and use standard mathematical formulae; rearrange formulae to change the subject. Model situations or procedures by translating them into algebraic expressions or formulae and by using graphs. Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement. Work with coordinates in all four quadrants Recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane. Interpret mathematical relationships both

									algebraically and graphically.