Kingfisher CE ACADEMY

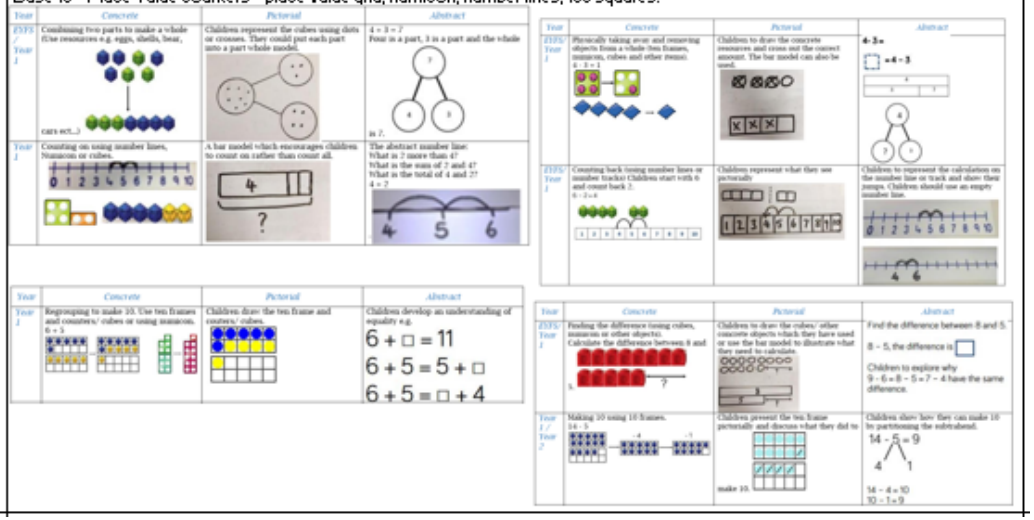
Maths Curriculum Reception to Year 6.

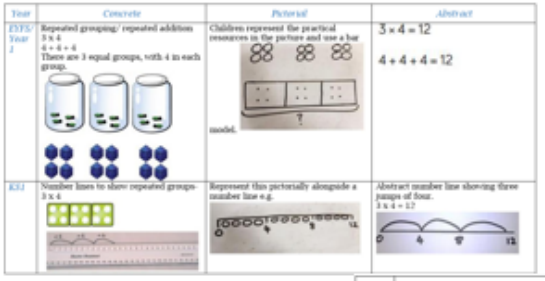
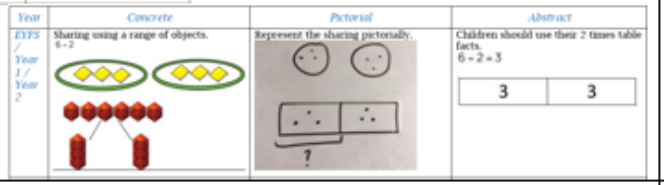
Based on NCETM Small steps.

Reception:

EYFS Statements	Early Learning Goals		By the end of Reception children should know... (Small steps)	Activities & Opportunities	Vocabulary
Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children 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.	**ELG: Number** Children at the expected level of development will: - Have a deep understanding of number to 10, including the composition of each number; - Subitise (recognise quantities without counting) up to 5; - 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. **ELG: Numerical Patterns** Children at the expected level of development will: - 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.	**Cardinality & counting**	1 Counting: saying number words in sequence. 2 Counting: tagging each object with one number word 3 Counting: knowing the last number counted gives the total so far 4 Subitising: recognising small quantities without needing to count them all 5 Numeral meanings 6 Conservation: knowing that the number does not change if things are rearranged (as long as none have been added or taken away)	National Centre for Excellence in the Teaching of Mathematics (ncetm.org.uk)	amount, backwards, collection, count, four, fourer (than), forwards, how many, largest, lot(s), more (than), number, numeral, same, smallest, subitise, after, before, different, represent, zero
		Comparison	1 More than / less than 2 Identifying groups with the same number of things 3 Comparing numbers and reasoning 4 Knowing the 'one more than/one less than' relationship between counting numbers	National Centre for Excellence in the Teaching of Mathematics (ncetm.org.uk)	1 less, 1 more, add, add more, altogether, first, left, now, part, take away, whole
		Composition	1 Part–whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total) 2 Inverse operations 3 A number can be partitioned into different pairs of numbers 4 A number can be partitioned into more than two numbers 5 Number bonds: knowing which pairs make a given number	National Centre for Excellence in the Teaching of Mathematics (ncetm.org.uk)	
		Pattern	1 Continuing an AB pattern 2 Copying an AB pattern 3 Make their own AB pattern 4 Spotting an error in an AB pattern 5 Identifying the unit of repeat 6 Continuing an ABC pattern 7 Continuing a pattern which ends mid-unit 8 Make their own ABB, ABBC patterns 9 Spotting an error in an ABB pattern 10 Symbolising the unit structure 11 Generalising structures to another context or mode 12 Making a pattern which repeats around a circle 13 Making a pattern around a border with a fixed number of spaces 14 Pattern-spotting around us	National Centre for Excellence in the Teaching of Mathematics (ncetm.org.uk)	continue, copy, mistake, repeat, repeating, pattern, same, unit of repeat,
		Measures	1 Recognising attributes 2 Comparing amounts of continuous quantities 3 Showing awareness of comparison in estimating and predicting 4 Comparing indirectly 5 Recognising the relationship between the size and number of units 6 Beginning to use units to compare things 7 Beginning to use time to sequence events 8 Beginning to experience specific time durations	National Centre for Excellence in the Teaching of Mathematics (ncetm.org.uk)	big, bigger, large, little, small, smaller, height, length, long, longer, longest,measure, short, shorter, shortest, tall, taller, tallest, balanced, balancing, scales, empty, float, full, heavier, heaviest, heavy, least, less, light, lighter, lightest, mass, more, most, narrow, sink, tall, thin, weight, wide, after, afternoon, before, clock, day, evening, later, lunchtime, minute, morning, night, night-time, today, tomorrow, week, weekend, yesterday
		Shape & Space	1 Developing spatial awareness: experiencing different viewpoints 2 Developing spatial vocabulary 3 Shape awareness: developing shape awareness through construction 4 Representing spatial relationships 5 Identifying similarities between shapes 6 Showing awareness of properties of shape 7 Describing properties of shape 8 Developing an awareness of relationships between shapes	National Centre for Excellence in the Teaching of Mathematics (ncetm.org.uk)	2-d shape, 3-d shape, circle, cone, corner, cube, cuboid, curved, cylinder,face, flat, pyramid, rectangle, rotate, set, sides, solid, sort, sphere, square, straight, surface, triangle, above, around, backwards, below, beside, bottom, forwards, map, next to, position, route, top

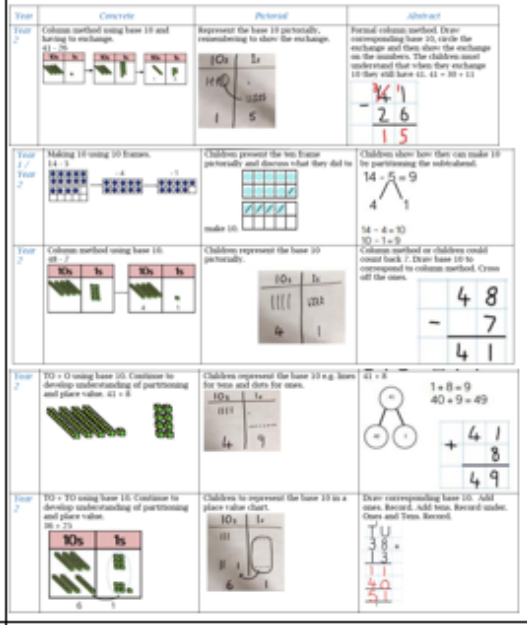
Year 1

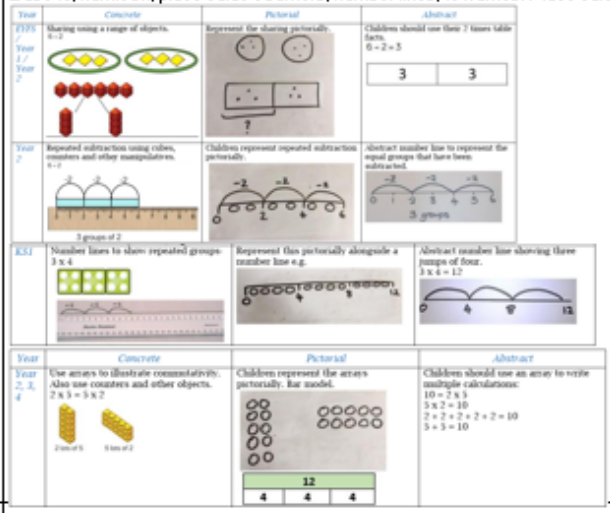
Prior Knowledge - Reception	Year 1	NC Objectives	By the end of Year 1 children should know... (Small steps)	Vocabulary	Concrete/ Pictorial/ Abstract must haves!
Cardinality & Counting 1 Counting: saying number words in sequence. 2 Counting: tagging each object with one number word 3 Counting: knowing the last number counted gives the total so far 4 Subitising: recognising small quantities without needing to count them all 5 Numeral meanings 6 Conservation: knowing that the	Number and Place Value	count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number I count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens I given a number, identify one more and one less I 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 I read and write numbers from 1 to 20 in numerals and words.	Number&place value (sm steps)'!A1	compare, count on, digit, fewest, greater than, greatest, less than, most, one(s), order, partition, represent, ten(s), ordinal numbers (first, second, third	Base 10 Place Value counters place value grid, numicon, number lines, 100 squares.
Comparison: 1 More than / less than 2 Identifying groups with the same number of things 3 Comparing numbers and reasoning 4 Knowing the 'one more than/one less than' relationship between counting numbers	Addition and Subtraction	read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs I represent and use number bonds and related subtraction facts within 20 I add and subtract one-digit and two-digit numbers to 20, including zero I solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = – 9.	+ & - (sm step) '!A1	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	Base 10 Place Value counters place value grid, numicon, number lines, 100 squares. 

Composition: 1 Part–whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total) 2 Inverse operations 3 A number can be partitioned into different pairs of numbers 4 A number can be partitioned into more than two numbers 5 Number bonds: knowing which pairs make a given number	Multiplication and Division	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.	X & Division (sm step)'!A1	array, divide, repeated, addition.	Base 10 Place Value counters place value grid, numicon, number lines, 100 squares.  
Pattern: 1 Continuing an AB pattern 2 Copying an AB pattern 3 Make their own AB pattern 4 Spotting an error in an AB pattern 5 Identifying the unit of repeat	Fractions	recognise, find and name a half as one of two equal parts of an object, shape or quantity I recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	Fractions (sm step)'!A1	A half Equal parts A quarter A whole	

5 Identifying the unit of repeat 6 Continuing an ABC pattern 7 Continuing a pattern which ends mid-unit 8 Make their own ABB, ABBC patterns 9 Spotting an error in an ABB pattern 10 Symbolising the unit structure 11 Generalising structures to another context or mode 12 Making a pattern which repeats around a circle 13 Making a pattern around a border with a fixed number of spaces 14 Pattern-spotting around us	Measurement	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,	Measurement (sm step)!A1	amount, coin, note, money, pence (p), pound (£), unitise, value, ruler, centimetres, capacity, container, non-standard, volume, half past, hour, month, o'clock, second, watch, week,	
Shape & Space: 1 Developing spatial awareness: experiencing different viewpoints 2 Developing spatial vocabulary 3 Shape awareness: developing shape awareness through construction 4 Representing spatial relationships 5 Identifying similarities between shapes 6 Showing awareness of	Shape	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].	Shape (sm step)!A1	2D shapes Rectangle Square Circle Triangle 3D shapes Cubes Cuboids	
Measure: 1 Recognising attributes 2 Comparing amounts of continuous quantities 3 Showing awareness of comparison in estimating and predicting 4 Comparing indirectly 5 Recognising the relationship between the size and number of units 6 Beginning to use units to compare things 7 Beginning to use time to sequence events 8 Beginning to	Position and Direction	describe position, direction and movement, including whole, half, quarter and three quarter turn	Position & Direction (sm step)!A1	far, full turn, half turn, left, near, quarter turn, right, three-quarter turn, direction	

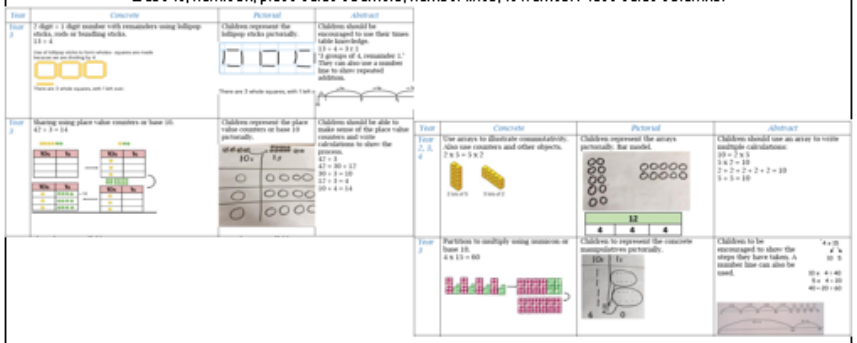
Year 2

Prior Knowledge- Year 1 (NC)	Year 2	NC Objectives	By the end of Year 2 children should know... (Small steps)	Vocabulary	Concrete/ Pictorial/ Abstract must haves!
count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number I count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens I given a number, identify one more and one less I 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 I read and write numbers from 1 to 20	Number and Place Value	I count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward I recognise the place value of each digit in a two-digit number (tens, ones) I identify, represent and estimate numbers using different representations, including the number line I compare and order numbers from 0 up to 100; use <, > and = signs I read and write numbers to at least 100 in numerals and in words I use place value and number facts to solve problems.	Number&place value (sm steps)'18	exchange, interval, least, multiple, value,	Base 10, numicon, place value counters, number lines, 10 frames. Place value columns.
read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs I represent and use number bonds and related subtraction facts within 20 I add and subtract one-digit and two-digit numbers to 20, including zero I solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = – 9.	Addition and Subtraction	I solve problems with addition and subtraction: I using concrete objects and pictorial representations, including those involving numbers, quantities and measures I applying their increasing knowledge of mental and written methods I recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 I add and subtract numbers using concrete objects, pictorial representations, and mentally, including: I a two-digit number and ones I a two-digit number and tens I two two-digit numbers I adding three one-digit numbers I show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot I recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	+ & - (sm step) '18	calculation, exchange, method, multiple, one(s), operation, partition, related facts, ten(s), value, increase, decrease, sum	Base 10, numicon, place value counters, number lines, 10 frames. Place value columns. 

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.	Multiplication and Division	I recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers I calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs I show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot I solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	X & Division (sm step)'!A1	**divide,** **even,** **half,** **lots of,** **multiply,** **odd,** **twice,** **times** **times-table,**	Base 10, numicon, place value counters, number lines, 10 frames. Place value columns. 
recognise, find and name a half as one of two equal parts of an object, shape or quantity I recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	Fractions	I recognise, find, name and write fractions 1/3 1/4 2/4 3/4 of a length, shape, set of objects or quantity I write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.	Fractions (sm step)'!A1	numerator, denominator, equivalent, unit fraction, non-unit fraction, third, two-quarters, three-quarters	
compare, describe and solve practical problems for: I lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] I mass/weight [for example, heavy/light, heavier than, lighter than] I capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] I time [for example, quicker, slower, earlier, later] I measure and begin to record the following: I lengths and heights I mass/weight I capacity and volume I time (hours, minutes, seconds) I recognise and know the value of	Measurement	I 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 I compare and order lengths, mass, volume/capacity and record the results using >, < and = I recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value I find different combinations of coins that equal the same amounts of money I solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change I compare and sequence intervals of time I 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 I know the number of minutes in an hour and the number of	Measurement (sm step)'!A1	cost, worth, Change, metres, celsius, circular scales, degrees, grams, kilograms, litres, millilitres, temperature, thermometer, five-minute intervals midnight, noon, quarter past, quarter to,	

recognise and name common 2-D and 3-D shapes, including: l 2-D shapes [for example, rectangles (including squares), circles and triangles] l 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].	Shape	l identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line l identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces l identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] l compare and sort common 2-D and 3-D shapes and everyday objects.	Shape (sm step)'!A1	edge, line of symmetry, symmetrical, vertex, vertices, decreasing, increasing, sequence	
describe position, direction and movement, including whole, half, quarter and three quarter turn	Position and Direction	l order and arrange combinations of mathematical objects in patterns and sequences l 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 anticlockwise).	Position & Direction (sm step)'!A1	anti-clockwise, between, clockwise	
	Statistics	l interpret and construct simple pictograms, tally charts, block diagrams and simple tables l ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity l ask and answer questions about totalling and comparing categorical data.		block diagram, key, pictogram, table, tally chart, collect, record	

Year 3

Prior Knowledge- Year 2 (NC)	Year 3	NC Objectives	By the end of Year 3 children should know... (Small steps)	Vocabulary	Concrete/ Pictorial/ Abstract must haves!
I count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward I recognise the place value of each digit in a two-digit number (tens, ones) I identify, represent and estimate numbers using different representations, including the number line I compare and order numbers from 0 up to 100; use <, > and = signs I read and write numbers to at least 100 in numerals and in words I use place value and number facts to	Number and Place Value	Pupils should be taught to: count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number recognise the place value of each digit in a 3-digit number (100s, 10s, 1s) compare and order numbers up to 1,000 identify, represent and estimate numbers using different representations read and write numbers up to 1,000 in numerals and in words solve number problems and practical problems involving these ideas	Number&place value (sm steps)'!A1	ascending, descending, hundred(s), part, whole	Base 10, numicon, place value counters, number lines, 10 frames. Place value columns.
I solve problems with addition and subtraction: I using concrete objects and pictorial representations, including those involving numbers, quantities and measures I applying their increasing knowledge of mental and written methods I recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 I add and subtract numbers using concrete objects, pictorial representations, and mentally, including:	Addition and Subtraction	Pupils should be taught to: add and subtract numbers mentally, including: a three-digit number and 1s a three-digit number and 10s a three-digit number and 100s add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction estimate the answer to a calculation and use inverse operations to check answers solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	+ & - (sm step) '!A1	column, addition, column, subtraction, digit, estimate, exchange, hundred(s), inverse, crossing the 10, crossing the 100,	Base 10, numicon, place value counters, number lines, 10 frames. Place value columns.
I recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers I calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs I show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot I solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems	Multiplication and Division	Pupils should be taught to: recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables 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 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	X & Division (sm step)'!A1	**multiplied by** **larger/smaller** **product** **times table facts** **integer** **remainder**	Base 10, numicon, place value counters, number lines, 10 frames. Place value columns. 

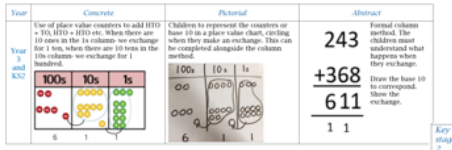
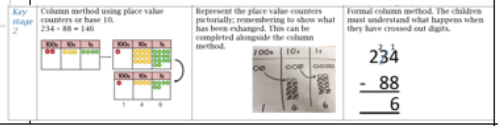
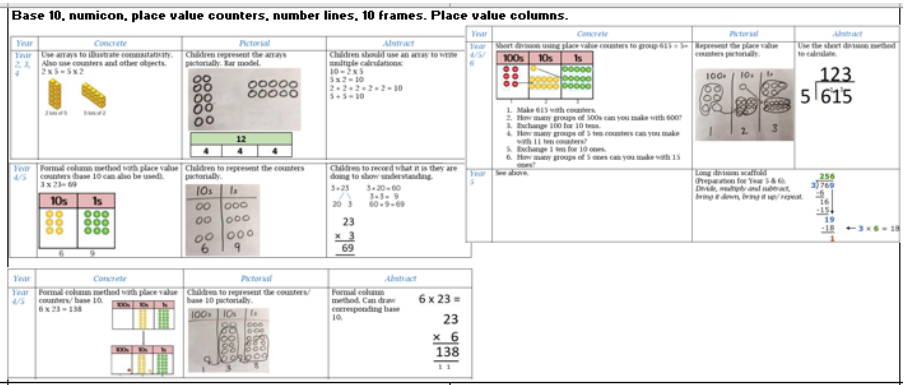
I recognise, find, name and write fractions 1/3 1/4 2/4 3/4 of a length, shape, set of objects or quantity I write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.	Fractions	Pupils should be taught to: count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators recognise and show, using diagrams, equivalent fractions with small denominators add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7] compare and order unit fractions, and fractions with the same denominators solve problems that involve all of the above	Fractions (sm step)!A1	fifth, sixth, seventh, eighth, ninth, tenth two thirds tenths unit fraction non- unit fraction equivalent fraction decimal point scale, compare, convert		
I 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 I compare and order lengths, mass, volume/capacity and record the results using >, < and = I recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value I find different combinations of coins that equal the same amounts of money I solve simple problems in a practical context involving addition and	Measurement	Pupils should be taught to: measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) measure the perimeter of simple 2-D shapes add and subtract amounts of money to give change, using both £ and p in practical contexts tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight know the number of seconds in a minute and the number of days in each month, year and leap year compare durations of events [for example, to calculate the time taken by particular events or tasks]	Measurement (sm step)!A1	convert, convert, millimetres, perimeter, convert, analogue clock, 12-hour clock, 24-hour clock, digital clock duration, leap year, am, pm, roman numerals,		
I identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line I identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces I identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] I compare and sort common 2-D and	Shape	Pupils should be taught to: draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them recognise angles as a property of shape or a description of a turn identify right angles, recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn; identify whether angles are greater than or less than a right angle identify horizontal and vertical lines and pairs of perpendicular and parallel lines	Shape (sm step)!A1	acute, obtuse, angle, vertical horizontal, parallel, perpendicular, polygon, right angle		
I order and arrange combinations of mathematical objects in patterns and sequences I 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 anticlockwise).	Position and Direction	NA				
I interpret and construct simple pictograms, tally charts, block diagrams and simple tables I ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity I ask and answer questions about totalling and comparing categorical data.	Statistics	Pupils should be taught to: interpret and present data using bar charts, pictograms and tables solve one-step and two-step questions [for example 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables	Statistics (sm step)!A1	axis, bar chart, cell, horizontal axis, label, scale, two-way table, title, vertical axis		

Year 4

Prior Knowledge- Year 3 (NC)	Year 4	NC Objectives	By the end of Year 4 children should know... (Small steps)	Vocabulary	Concrete/ Pictorial/ Abstract must haves!
Pupils should be taught to: count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number recognise the place value of each digit in a 3-digit number (100s, 10s, 1s) compare and order numbers up to 1,000 identify, represent and estimate numbers using different representations read and write numbers up to 1,000 in numerals and in words	Number and Place Value	Pupils should be taught to: count in multiples of 6, 7, 9, 25 and 1000 I find 1000 more or less than a given number I count backwards through zero to include negative numbers I recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) I order and compare numbers beyond 1000 I identify, represent and estimate numbers using different representations I round any number to the nearest 10, 100 or 1000 I solve number and practical problems that involve all of the above and with increasingly large positive numbers	Number&place value (sm steps)'!A1	place holder, roman, numeral, round, thousands	Base 10, numicon, place value counters, number lines, 10 frames. Place value columns.
Pupils should be taught to: add and subtract numbers mentally, including: a three-digit number and 1s a three-digit number and 10s a three-digit number and 100s add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction estimate the answer to a calculation and use inverse operations to check answers solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	Addition and Subtraction	Pupils should be taught to: I add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate I estimate and use inverse operations to check answers to a calculation I solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	+ & - (sm step) '!A1	efficient, inverse, round, thousand(s)	Base 10, numicon, place value counters, number lines, 10 frames. Place value columns.
Pupils should be taught to: recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables 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 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	Multiplication and Division	Pupils should be taught to: I recall multiplication and division facts for multiplication tables up to 12 × 12 I use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers I recognise and use factor pairs and commutativity in mental calculations I multiply two-digit and three-digit numbers by a one-digit number using formal written layout I solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	X & Division (sm step)'!A1	factor, factor pair, inverse, triple, efficient	**Base 10, numicon, place value counters, number lines, 10 frames. Place**

Irecognise, find, name and write fractions 1/3 1/4 2/4 3/4 of a length, shape, set of objects or quantity I write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.	Fractions (including decimals)	Pupils should be taught to: I recognise and show, using diagrams, families of common equivalent fractions I count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. I solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number I add and subtract fractions with the same denominator I recognise and write decimal equivalents of any number of tenths or hundredths I recognise and write decimal equivalents to 4 1, 2 1, 4 3 I find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths I round decimals with one decimal place to the nearest whole number I compare numbers with the same number of decimal places up to two decimal places I solve simple measure and money problems involving fractions and decimals to two decimal places.	Fractions (sm step)!A1	decimal equivalent, decimal place, decimal point, hundredths, improper, fractions, mixed, numbers, proper fractions, round, tenths		
Pupils should be taught to: measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) measure the perimeter of simple 2-D shapes add and subtract amounts of money to give change, using both £ and p in practical contexts tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight know the number of seconds in a minute and the number of days in each month, year and leap year compare durations of events [for example, to calculate the time taken by particular events or tasks]	Measurement	Pupils should be taught to: I Convert between different units of measure [for example, kilometre to metre; hour to minute] I measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres I find the area of rectilinear shapes by counting squares I estimate, compare and calculate different measures, including money in pounds and pence I read, write and convert time between analogue and digital 12- and 24-hour clocks I solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	Measurement (sm step)!A1	decimal, area, kilometres, rectilinear, width		
Pupils should be taught to: draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them recognise angles as a property of shape or a description of a turn identify right angles, recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn; identify whether angles are greater than or less than a right angle identify horizontal and vertical lines and pairs of perpendicular and parallel lines	Shape	Pupils should be taught to: I compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes I identify acute and obtuse angles and compare and order angles up to two right angles by size I identify lines of symmetry in 2-D shapes presented in different orientations I complete a simple symmetric figure with respect to a specific line of symmetry.	Shape (sm step)!A1	equilateral, regular, irregular, isosceles, parallelogram, quadrilateral, rhombus, scalene, trapezium		
NA	Position and Direction	Pupils should be taught to: I describe positions on a 2-D grid as coordinates in the first quadrant I describe movements between positions as translations of a given unit to the left/right and up/down I plot specified points and draw sides to complete a given polygon.	Position & Direction (sm step)!A1	coordinates, grid, reflection, translation,		
Pupils should be taught to: interpret and present data using bar charts, pictograms and tables solve one-step and two-step questions [for example 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables	Statistics	Pupils should be taught to: I interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. I solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	Statistics (sm step)!A1	data, estimate, line graph		

Year 5

Prior Knowledge- Year 4 (NC)	Year 5	NC Objectives	By the end of Year 5 children should know... (Small steps)	Vocabulary	Concrete/ Pictorial/ Abstract must haves!	Sentence Stems	Songs
Pupils should be taught to: count in multiples of 6, 7, 9, 25 and 1000 find 1000 more or less than a given number count backwards through zero to include negative numbers recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) order and compare numbers beyond 1000	Number and Place Value	Pupils should be taught to: read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 solve number problems and practical problems that involve all of the above read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	Number&place value (sm steps)'!A1	hundred, ten millionthousand(s), integer, negative number, millions, power of 10,	Base 10, numicon, place value counters, number lines, 10 frames. Place value columns.		
Pupils should be taught to: add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate estimate and use inverse operations to check answers to a calculation solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Addition and Subtraction	Pupils should be taught to: add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) add and subtract numbers mentally with increasingly large numbers use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	+ & - (sm step) '!A1	accurate, approximate, constant difference, strategy	Base 10, numicon, place value counters, number lines, 10 frames. Place value columns. Year 5 - complete 4, 5, 6 digit problems using the below methods  	Year 5 - complete 4, 5, 6 digit problems using the below methods  		
Pupils should be taught to: recall multiplication and division facts for multiplication tables up to 12 × 12 use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers recognise and use factor pairs and commutativity in mental calculations multiply two-digit and three-digit numbers by a one-digit number using formal written layout solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	Multiplication and Division	Pupils should be taught to: identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers establish whether a number up to 100 is prime and recall prime numbers up to 19 multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers multiply and divide numbers mentally drawing upon known facts divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	X & Division (sm step)'!A1	common multiple, common factor, cube number, prime number, square number	**Base 10, numicon, place value counters, number lines, 10 frames. Place value columns.**  		
Pupils should be taught to: recognise and show, using diagrams, families of common equivalent fractions count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number add and subtract fractions with the same denominator recognise and write decimal equivalents of any number of tenths or hundredths recognise and write decimal equivalents to 4 1, 2 1, 4 3 find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths round decimals with one decimal place to the nearest whole number compare numbers with the same number of decimal places up to two decimal places solve simple measure and money problems involving fractions and decimals to two decimal places.	Fractions, decimals, percentages	Pupils should be taught to: compare and order fractions whose denominators are all multiples of the same number identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 5 2 + 5 4 = 5 6 = 15 1] add and subtract fractions with the same denominator and denominators that are multiples of the same number multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams read and write decimal numbers as fractions [for example, 0.71 = 100 71] recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents round decimals with two decimal places to the nearest whole number and to one decimal place read, write, order and compare numbers with up to three decimal places solve problems involving number up to three decimal places recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal solve problems which require knowing percentage and decimal equivalents of 1/2 1/4 1/5 2/5 4/5 and those fractions with a denominator of a multiple of 10 or 25.	Fractions (sm step)'!A1	common denominator, fractional part, percentage, thousandth			

Pupils should be taught to: | Convert between different units of measure [for example, kilometre to metre; hour to minute]	measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	find the area of rectilinear shapes by counting squares	estimate, compare and calculate different measures, including money in pounds and pence	read, write and convert time between analogue and digital 12- and 24-hour clocks	solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	Measurement	Pupils should be taught to:	convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)	understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints	measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes	estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]	solve problems involving converting between units of time	use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	Measurement (sm step)1A1	decimal imperial, inches, metric, volume, cubic, centimetres, imperial metric, pints, pounds,		
Pupils should be taught to: 	compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	identify acute and obtuse angles and compare and order angles up to two right angles by size	identify lines of symmetry in 2-D shapes presented in different orientations	complete a simple symmetric figure with respect to a specific line of symmetry.	Shape	Pupils should be taught to:	identify 3-D shapes, including cubes and other cuboids, from 2-D representations	know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	draw given angles, and measure them in degrees (o)	identify:	angles at a point and one whole turn (total 360o)	angles at a point on a straight line and	use the properties of rectangles to deduce related facts and find missing lengths and angles	distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	Shape (sm step)1A1	adjacent, degrees, reflex angle		
Pupils should be taught to: 	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	plot specified points and draw sides to complete a given polygon.	Position and Direction	Pupils should be taught to:	identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.	Position & Direction (sm step)1A1	reflection, quadrant		
Pupils should be taught to: 	interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.	solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	Statistics	Pupils should be taught to:	solve comparison, sum and difference problems using information presented in a line graph	complete, read and interpret information in tables, including timetables.	Statistics (sm step)1A1	timetable, variable		

Year 6

Prior Knowledge- Year 5 (NC)	Year 6	NC Objectives	By the end of Year 5 children should know... (Small steps)	Vocabulary	Concrete/ Pictorial/ Abstract must haves!
Pupils should be taught to: I read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit I count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 I interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero I round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 I solve number problems and practical problems that involve all of the above I read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	Number and Place Value	Pupils should be taught to: read, write, order and compare numbers up to 10,000,000 and determine the value of each digit round any whole number to a required degree of accuracy use negative numbers in context, and calculate intervals across 0 solve number and practical problems that involve all of the above	Number&place value (sm steps)'1A1	millions ten millions	Base 10, numicon, place value counters, number lines, 10 frames. Place value columns.
Pupils should be taught to: I add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) I add and subtract numbers mentally with increasingly large numbers I use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy I solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	Addition & Subtraction	Pupils should be taught to: perform mental calculations, including with mixed operations and large numbers use their knowledge of the order of operations to carry out calculations involving the 4 operations solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy	+ & - (sm step) '1A1	order of operations	Base 10, numicon, place value counters, number lines, 10 frames. Place value columns. Year 5 - complete 4, 5, 6 digit problems using the below methods Year 4 - complete 4 digit problems using the above methods Year 5 - complete 4, 5 and 6 digit problems using the above methods. Year 6 - complete decimal place problems using the above methods
Pupils should be taught to: I identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers I know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers I establish whether a number up to 100 is prime and recall prime numbers up to 19 I multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers I multiply and divide numbers mentally drawing upon known facts I divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context I multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 I recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) I solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes I solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign I solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	Multiplication and Division	Pupils should be taught to: identify common factors, common multiples and prime numbers 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 4 operations	X & Division (sm step)'1A1	composite number, order of operations, powers of	**Base 10, numicon, place value counters, number lines, 10 frames. Place value columns.**
Pupils should be taught to: I compare and order fractions whose denominators are all multiples of the same number I identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths I recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 5 2 + 5 4 = 5 6 = 15 1] I add and subtract fractions with the same denominator and denominators that are multiples of the same number I multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams I read and write decimal numbers as fractions [for example, 0.71 = 100 71] I recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents I round decimals with two decimal places to the nearest whole number and to one decimal place I read, write, order and compare numbers with up to three decimal places I solve problems involving number up to three decimal places I recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator	Fractions, decimals, percentages	Pupils should be taught to: use common factors to simplify fractions; use common multiples to express fractions in the same denomination compare and order fractions, including fractions >1 add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, [Fraction:1/4] × [Fraction:1/2] = [Fraction:1/8]] divide proper fractions by whole numbers [for example, [Fraction:1/3] ÷ 2 = [Fraction:1/6]] associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, [Fraction:3/8]] identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places multiply one-digit numbers with up to 2 decimal places by whole numbers use written division methods in cases where the answer has up to 2 decimal places solve problems which require answers to be rounded to specified degrees of accuracy	Fractions (sm step)'1A1	simplify, simplest form,recurring	

Pupils should be taught to: l convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) l understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints l measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres l calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes l estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water] l solve problems involving converting between units of time l use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	Measurement	Pupils should be taught to: solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places convert between miles and kilometres recognise that shapes with the same areas can have different perimeters and vice versa recognise when it is possible to use formulae for area and volume of shapes calculate the area of parallelograms and triangles calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³]	Measurement (sm step)!A1	decimal formula, , gallon, ounces, tonnes		
Pupils should be taught to: l identify 3-D shapes, including cubes and other cuboids, from 2-D representations l know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles l draw given angles, and measure them in degrees (o) l identify: l angles at a point and one whole turn (total 360o) l angles at a point on a straight line and l use the properties of rectangles to deduce related facts and find missing lengths and angles l distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	Shape	Pupils should be taught to: l draw 2-D shapes using given dimensions and angles recognise, describe and build simple 3-D shapes, including making nets compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles	Shape (sm step)!A1	base, circumference,diameter, dimensions, interior angles, intersect, net, opposite, angles, radius,		
Pupils should be taught to: l identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.	Position and Direction	Pupils should be taught to: l describe positions on the full coordinate grid (all 4 quadrants) draw and translate simple shapes on the coordinate plane, and reflect them in the axes	Position & Direction (sm step)!A1	reflection, -axis -axis *x* *y*		