Domain	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
• To ensure deepening understanding of mathematics, children are provided with extensive problem solving experiences throughout all domains.								
Place Value	Recognise numbers to 10 Verbally count to 20 Compare numbers up to 10	•count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number •count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens •read and write numbers from 1 to 20 in numerals and words •given a number, identify one more and one less •represent and use number bonds and related subtraction facts within 20	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward recognise the place value of each digit in a two-digit number (tens, ones) identify, represent and estimate numbers using different representations, including the number line compare and order numbers from 0 up to 100; use and = signs read and write numbers to at least 100 in numerals and in words	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 three-digit number (hundreds, tens, ones) compare and order numbers up to 1000 identify, represent and estimate numbers using different representations read and write numbers up to 1000 in numerals and in words	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 identify, represent and estimate numbers using different representations round any number to the nearest 10, 100 or 1000	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 read Roman numerals to 1000	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 zero	Understand and use positive and negative numbers in context. Compare and order numbers up to 1,000,000. Recognize the place value of digits in whole numbers and decimals
Addition and subtraction	Subitise number up to and including 5 Recall number bonds to 5 Recall some number bonds to 10	•read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs •add and subtract one-digit and two-digit numbers to 20, including zero •solve one-step problems that involve addition and subtraction e.g. as 7 = □ – 9.	recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 add and subtract numbers show addition can be done in any order (commutative law) recognise and use the inverse relationship between addition and subtraction	add and subtract numbers mentally (up to 3 digits) add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction estimation	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	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	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 perform mental calculations, including with mixed operations and large numbers identify common factors, common multiples and prime numbers use their knowledge of the order of operations to carry out calculations involving the four operations	Perform addition and subtraction of whole numbers, decimals, and fractions. Solve problems involving addition and subtraction in real-life contexts. Understand and apply the properties of operations to calculations.
Multiplication and Division	Doubling numbers to 5 (to make 10)	•count in 2s, 5s and 10s •solve one-step problems involving multiplication and division	recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables calculate mathematical statements for multiplication and division show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	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	recall multiplication and division facts for multiplication tables up to 12 × 12 use place value, known and derived facts to multiply and divide mentally 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	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)		Multiply and divide integers and decimals. Use multiplication and division in problem-solving contexts, including long division and multiplication methods. Understand and use factors and multiples, including prime factorization.
Fractions (and decimals from Y4)	Practically find and recognise half of objects	recognise, find and name a half as one of two equal parts of an object, shape or quantity recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	recognise, find, name and write fractions 3 1 , 4 1 , 4 2 and 4 3 of a length, shape, set of objects or quantity write simple fractions for example, 2 1 of 6 = 3 and recognise the equivalence of 4 2 and 2 1 .	count up and down in tenths recognise, find and write fractions of a discrete set of objects recognise and use fractions as numbers add and subtract fractions compare and order unit fractions, and fractions with the same denominators	recognise and show, using diagrams, families of common equivalent fractions count up and down in hundredths 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 Multiply and divide by 10 and 100 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	compare and order fractions whose denominators are all multiples of the same number identify, name and write equivalent fractions of a given fraction, recognise mixed numbers and improper fractions and convert from one form to the other 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 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 recognise the per cent symbol	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 multiply simple pairs of proper fractions divide proper fractions by whole numbers associate a fraction with division and calculate decimal fraction equivalents multiply and divide numbers by 10, 100 and 1000 multiply one-digit numbers with up to two decimal places by whole numbers **Ratio** solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison solve problems involving similar shapes where the scale factor is known or can be found	Simplify fractions and convert between mixed numbers and improper fractions. Perform operations (addition, subtraction, multiplication, division) with fractions. Solve problems involving fractions in real-world contexts

Measurement	Compare size of objects Compare weight, length, size and capacity	Compare and describe length/height, mass/weight, capacity/volume Describe time (quicker/faster) and dates	choose and use appropriate standard units to estimate and measure compare and order lengths, mass, volume/capacity and record the results using >, < and = recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value 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	measure, compare, add and subtract using all areas of measure (including money) tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks compare durations of events	Convert between different units of measure measure and calculate the perimeter of a rectilinear figure find the area of rectilinear shapes by counting squares estimate, compare and calculate different measures	convert between different units of metric measure 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 estimate volume converting between units of time	use, read, write and convert between standard units 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	Understand and use appropriate units of measurement (length, mass, volume). Convert between different units of measurement. Calculate perimeter, area, and volume of various shapes.
Geometry	Represent patterns Create and extend ABAB patterns	recognise and name common 2-D and 3-D shapes describe position, direction and movement.	identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces identify 2-D shapes on the surface of 3-D shapes, sort shapes according to properties use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn	draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them recognise angles (but not name angles) recognise right angles identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	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	identify 3-D shapes, including cubes and other cuboids, from 2-D representations 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 2 1 a turn (total 180o) other multiples of 90 use the properties of rectangles 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.	draw 2-D shapes 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 describe positions on the full coordinate grid (all four quadrants) draw and translate simple shapes on the coordinate plane, and reflect them in the axes.	Recognize, describe, and classify 2D and 3D shapes. Understand properties of angles and perform angle calculations. Identify lines of symmetry and transformations (reflection, rotation, translation)
Statistics	**Experience different ways to represent data**			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.	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.	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	interpret and construct pie charts and line graphs and use these to solve problems calculate and interpret the mean as an average. <u>Algebra</u> use simple formulae generate and describe linear number sequences express missing number problems algebraically find pairs of numbers that satisfy an equation with two unknowns enumerate possibilities of combinations of two variables	Collect, organize, and interpret data using charts, tables, and graphs. Calculate measures of central tendency (mean, median, mode). Understand probability and express it as a fraction, decimal, or percentage.