



## National Curriculum Standards Coding

Year	Standard Short Code	Standard Description
Key Stage 1 Year 2	UK NPV	Number - number and place value
Key Stage 1 Year 2	UK NPV.1	Pupils should be taught to: count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward
Key Stage 1 Year 2	UK NPV.2	Pupils should be taught to: recognise the place value of each digit in a two-digit number (tens, ones)
Key Stage 1 Year 2	UK NPV.3	Pupils should be taught to: identify, represent and estimate numbers using different representations, including the number line
Key Stage 1 Year 2	UK NPV.4	Pupils should be taught to: compare and order numbers from 0 up to 100; use <, > and = signs
Key Stage 1 Year 2	UK NPV.5	Pupils should be taught to: read and write numbers to at least 100 in numerals and in words
Key Stage 1 Year 2	UK NPV.6	Pupils should be taught to: use place value and number facts to solve problems.
Key Stage 1 Year 2	UK NAS	Number - addition and subtraction
Key Stage 1 Year 2	UK NAS.1	solve problems with addition and subtraction:
Key Stage 1 Year 2	UK NAS.1.a	Pupils should be taught to: solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures
Key Stage 1 Year 2	UK NAS.1.b	Pupils should be taught to: solve problems with addition and subtraction: applying their increasing knowledge of mental and written methods
Key Stage 1 Year 2	UK NAS.2	Pupils should be taught to: recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
Key Stage 1 Year 2	UK NAS.3	add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
Key Stage 1 Year 2	UK NAS.3.a	Pupils should be taught to: add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones
Key Stage 1 Year 2	UK NAS.3.b	Pupils should be taught to: add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and tens
Key Stage 1 Year 2	UK NAS.3.c	Pupils should be taught to: add and subtract numbers using concrete objects, pictorial representations, and mentally, including: two two-digit numbers
Key Stage 1 Year 2	UK NAS.3.d	Pupils should be taught to: add and subtract numbers using concrete objects, pictorial representations, and mentally, including: adding three one-digit numbers
Key Stage 1 Year 2	UK NAS.4	Pupils should be taught to: show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
Key Stage 1 Year 2	UK NAS.5	Pupils should be taught to: recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
Key Stage 1 Year 2	UK NMD	Number - multiplication and division
Key Stage 1 Year 2	UK NMD.1	Pupils should be taught to: recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
Key Stage 1 Year 2	UK NMD.2	Pupils should be taught to: calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs
Key Stage 1 Year 2	UK NMD.3	Pupils should be taught to: show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
Key Stage 1 Year 2	UK NMD.4	Pupils should be taught to: solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.
Key Stage 1 Year 2	UK NF	Number - fractions
Key Stage 1 Year 2	UK NF.1	Pupils should be taught to: recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity
Key Stage 1 Year 2	UK NF.2	Pupils should be taught to: write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.
Key Stage 1 Year 2	UK M	Measurement
Key Stage 1 Year 2	UK M.1	Pupils should be taught to: 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
Key Stage 1 Year 2	UK M.2	Pupils should be taught to: compare and order lengths, mass, volume/capacity and record the results using >, < and =
Key Stage 1 Year 2	UK M.3	Pupils should be taught to: recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
Key Stage 1 Year 2	UK M.4	Pupils should be taught to: find different combinations of coins that equal the same amounts of money
Key Stage 1 Year 2	UK M.5	Pupils should be taught to: solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
Key Stage 1 Year 2	UK M.6	Pupils should be taught to: compare and sequence intervals of time
Key Stage 1 Year 2	UK M.7	Pupils should be taught to: 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
Key Stage 1 Year 2	UK M.8	Pupils should be taught to: know the number of minutes in an hour and the number of hours in a day.
Key Stage 1 Year 2	UK GPS	Geometry - properties of shapes
Key Stage 1 Year 2	UK GPS.1	Pupils should be taught to: identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line
Key Stage 1 Year 2	UK GPS.2	Pupils should be taught to: identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces



Key Stage 1 Year 2	UK GPS.3	Pupils should be taught to: identify 2-D shapes on the surface of 3-D shapes [for example, a circle on a cylinder and a triangle on a pyramid]
Key Stage 1 Year 2	UK GPS.4	Pupils should be taught to: compare and sort common 2-D and 3-D shapes and everyday objects.
Key Stage 1 Year 2	UK GPD	Geometry - position and direction
Key Stage 1 Year 2	UK GPD.1	Pupils should be taught to: order and arrange combinations of mathematical objects in patterns and sequences
Key Stage 1 Year 2	UK GPD.2	Pupils should be taught to: use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).
Key Stage 1 Year 2	UK S	Statistics
Key Stage 1 Year 2	UK S.1	Pupils should be taught to: interpret and construct simple pictograms, tally charts, block diagrams and simple tables
Key Stage 1 Year 2	UK S.2	Pupils should be taught to: ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
Key Stage 1 Year 2	UK S.3	Pupils should be taught to: ask and answer questions about totalling and comparing categorical data.
Key Stage 2 Year 3	UK NPV	Number - number and place value
Key Stage 2 Year 3	UK NPV.1	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
Key Stage 2 Year 3	UK NPV.2	Pupils should be taught to: recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
Key Stage 2 Year 3	UK NPV.3	Pupils should be taught to: compare and order numbers up to 1000
Key Stage 2 Year 3	UK NPV.4	Pupils should be taught to: identify, represent and estimate numbers using different representations
Key Stage 2 Year 3	UK NPV.5	Pupils should be taught to: read and write numbers up to 1000 in numerals and in words
Key Stage 2 Year 3	UK NPV.6	Pupils should be taught to: solve number problems and practical problems involving these ideas.
Key Stage 2 Year 3	UK NAS	Number - addition and subtraction
Key Stage 2 Year 3	UK NAS.1	add and subtract numbers mentally, including:
Key Stage 2 Year 3	UK NAS.1.a	Pupils should be taught to: add and subtract numbers mentally, including: a three-digit number and ones
Key Stage 2 Year 3	UK NAS.1.b	Pupils should be taught to: add and subtract numbers mentally, including: a three-digit number and tens
Key Stage 2 Year 3	UK NAS.1.c	Pupils should be taught to: add and subtract numbers mentally, including: a three-digit number and hundreds
Key Stage 2 Year 3	UK NAS.2	Pupils should be taught to: add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
Key Stage 2 Year 3	UK NAS.3	Pupils should be taught to: estimate the answer to a calculation and use inverse operations to check answers
Key Stage 2 Year 3	UK NAS.4	Pupils should be taught to: solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.
Key Stage 2 Year 3	UK NMD	Number - multiplication and division
Key Stage 2 Year 3	UK NMD.1	Pupils should be taught to: recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
Key Stage 2 Year 3	UK NMD.2	Pupils should be taught to: write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
Key Stage 2 Year 3	UK NMD.3	Pupils should be taught to: 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.
Key Stage 2 Year 3	UK NF	Number - fractions
Key Stage 2 Year 3	UK NF.1	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
Key Stage 2 Year 3	UK NF.2	Pupils should be taught to: recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
Key Stage 2 Year 3	UK NF.3	Pupils should be taught to: recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
Key Stage 2 Year 3	UK NF.4	Pupils should be taught to: recognise and show, using diagrams, equivalent fractions with small denominators
Key Stage 2 Year 3	UK NF.5	Pupils should be taught to: add and subtract fractions with the same denominator within one whole [for example, $5/7 + 1/7 = 6/7$ ]
Key Stage 2 Year 3	UK NF.6	Pupils should be taught to: compare and order unit fractions, and fractions with the same denominators
Key Stage 2 Year 3	UK NF.7	Pupils should be taught to: solve problems that involve all of the above.
Key Stage 2 Year 3	UK M	Measurement
Key Stage 2 Year 3	UK M.1	Pupils should be taught to: measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)
Key Stage 2 Year 3	UK M.2	Pupils should be taught to: measure the perimeter of simple 2-D shapes
Key Stage 2 Year 3	UK M.3	Pupils should be taught to: add and subtract amounts of money to give change, using both £ and p in practical contexts
Key Stage 2 Year 3	UK M.4	Pupils should be taught to: tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
Key Stage 2 Year 3	UK M.5	Pupils should be taught to: 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, a.m./p.m., morning, afternoon, noon and midnight
Key Stage 2 Year 3	UK M.6	Pupils should be taught to: know the number of seconds in a minute and the number of days in each month, year and leap year



Key Stage 2 Year 3	UK M.7	Pupils should be taught to: compare durations of events [for example to calculate the time taken by particular events or tasks].
Key Stage 2 Year 3	UK GPS	Geometry - properties of shapes
Key Stage 2 Year 3	UK GPS.1	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
Key Stage 2 Year 3	UK GPS.2	Pupils should be taught to: recognise angles as a property of shape or a description of a turn
Key Stage 2 Year 3	UK GPS.3	Pupils should be taught to: identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle
Key Stage 2 Year 3	UK GPS.4	Pupils should be taught to: identify horizontal and vertical lines and pairs of perpendicular and parallel lines.
Key Stage 2 Year 3	UK S	Statistics
Key Stage 2 Year 3	UK S.1	Pupils should be taught to: interpret and present data using bar charts, pictograms and tables
Key Stage 2 Year 3	UK S.2	Pupils should be taught to: 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.
Key Stage 2 Year 4	UK NPV	Number - number and place value
Key Stage 2 Year 4	UK NPV.1	Pupils should be taught to: count in multiples of 6, 7, 9, 25 and 1000
Key Stage 2 Year 4	UK NPV.2	Pupils should be taught to: find 1000 more or less than a given number
Key Stage 2 Year 4	UK NPV.3	Pupils should be taught to: count backwards through zero to include negative numbers
Key Stage 2 Year 4	UK NPV.4	Pupils should be taught to: recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)
Key Stage 2 Year 4	UK NPV.6	Pupils should be taught to: identify, represent and estimate numbers using different representations
Key Stage 2 Year 4	UK NPV.7	Pupils should be taught to: round any number to the nearest 10, 100 or 1000
Key Stage 2 Year 4	UK NPV.8	Pupils should be taught to: solve number and practical problems that involve all of the above and with increasingly large positive numbers
Key Stage 2 Year 4	UK NPV.9	Pupils should be taught to: read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.
Key Stage 2 Year 4	UK NAS	Number - addition and subtraction
Key Stage 2 Year 4	UK NAS.1	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
Key Stage 2 Year 4	UK NAS.2	Pupils should be taught to: estimate and use inverse operations to check answers to a calculation
Key Stage 2 Year 4	UK NAS.3	Pupils should be taught to: solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.
Key Stage 2 Year 4	UK NMD	Number - multiplication and division
Key Stage 2 Year 4	UK NMD.1	Pupils should be taught to: recall multiplication and division facts for multiplication tables up to 12 × 12
Key Stage 2 Year 4	UK NMD.2	Pupils should be taught to: 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
Key Stage 2 Year 4	UK NMD.3	Pupils should be taught to: recognise and use factor pairs and commutativity in mental calculations
Key Stage 2 Year 4	UK NMD.4	Pupils should be taught to: multiply two-digit and three-digit numbers by a one-digit number using formal written layout
Key Stage 2 Year 4	UK NMD.5	Pupils should be taught to: 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.
Key Stage 2 Year 4	UK NF	Number - fractions (including decimals)
Key Stage 2 Year 4	UK NF.1	Pupils should be taught to: recognise and show, using diagrams, families of common equivalent fractions
Key Stage 2 Year 4	UK NF.2	Pupils should be taught to: count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten
Key Stage 2 Year 4	UK NF.3	Pupils should be taught to: 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
Key Stage 2 Year 4	UK NF.4	Pupils should be taught to: add and subtract fractions with the same denominator
Key Stage 2 Year 4	UK NF.5	Pupils should be taught to: recognise and write decimal equivalents of any number of tenths or hundredths
Key Stage 2 Year 4	UK NF.5	Pupils should be taught to: recognise and write decimal equivalents of any number of tenths or hundredths
Key Stage 2 Year 4	UK NF.6	Pupils should be taught to: recognise and write decimal equivalents to 1/4, 1/2, 3/4
Key Stage 2 Year 4	UK NF.7	Pupils should be taught to: 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
Key Stage 2 Year 4	UK NF.8	Pupils should be taught to: round decimals with one decimal place to the nearest whole number
Key Stage 2 Year 4	UK NF.9	Pupils should be taught to: compare numbers with the same number of decimal places up to two decimal places
Key Stage 2 Year 4	UK NF.10	Pupils should be taught to: solve simple measure and money problems involving fractions and decimals to two decimal places.
Key Stage 2 Year 4	UK M	Measurement
Key Stage 2 Year 4	UK M.1	Pupils should be taught to: Convert between different units of measure [for example, kilometre to metre; hour to minute]
Key Stage 2 Year 4	UK M.2	Pupils should be taught to: measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
Key Stage 2 Year 4	UK M.3	Pupils should be taught to: find the area of rectilinear shapes by counting squares
Key Stage 2 Year 4	UK M.4	Pupils should be taught to: estimate, compare and calculate different measures, including money in pounds and pence
Key Stage 2 Year 4	UK M.5	Pupils should be taught to: read, write and convert time between analogue and digital 12- and 24-hour clocks
Key Stage 2 Year 4	UK M.6	Pupils should be taught to: solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.



Key Stage 2 Year 4	UK GPS	Geometry - properties of shapes
Key Stage 2 Year 4	UK GPS.1	Pupils should be taught to: compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
Key Stage 2 Year 4	UK GPS.2	Pupils should be taught to: identify acute and obtuse angles and compare and order angles up to two right angles by size
Key Stage 2 Year 4	UK GPS.3	Pupils should be taught to: identify lines of symmetry in 2-D shapes presented in different orientations
Key Stage 2 Year 4	UK GPS.4	Pupils should be taught to: complete a simple symmetric figure with respect to a specific line of symmetry.
Key Stage 2 Year 4	UK GPD	Geometry - position and direction
Key Stage 2 Year 4	UK GPD.1	Pupils should be taught to: describe positions on a 2-D grid as coordinates in the first quadrant
Key Stage 2 Year 4	UK GPD.2	Pupils should be taught to: describe movements between positions as translations of a given unit to the left/right and up/down
Key Stage 2 Year 4	UK GPD.3	Pupils should be taught to: plot specified points and draw sides to complete a given polygon.
Key Stage 2 Year 4	UK S	Statistics
Key Stage 2 Year 4	UK S.1	Pupils should be taught to: interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
Key Stage 2 Year 4	UK S.2	Pupils should be taught to: solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.
Key Stage 2 Year 5	UK NPV	Number - number and place value
Key Stage 2 Year 5	UK NPV.1	Pupils should be taught to: read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit
Key Stage 2 Year 5	UK NPV.2	Pupils should be taught to: count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000
Key Stage 2 Year 5	UK NPV.3	Pupils should be taught to: interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero
Key Stage 2 Year 5	UK NPV.4	Pupils should be taught to: round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000
Key Stage 2 Year 5	UK NPV.5	Pupils should be taught to: solve number problems and practical problems that involve all of the above
Key Stage 2 Year 5	UK NPV.6	Pupils should be taught to: read Roman numerals to 1000 (M) and recognise years written in Roman numerals.
Key Stage 2 Year 5	UK NAS	Number - addition and subtraction
Key Stage 2 Year 5	UK NAS.1	Pupils should be taught to: add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
Key Stage 2 Year 5	UK NAS.2	Pupils should be taught to: add and subtract numbers mentally with increasingly large numbers
Key Stage 2 Year 5	UK NAS.3	Pupils should be taught to: use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
Key Stage 2 Year 5	UK NAS.4	Pupils should be taught to: solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
Key Stage 2 Year 5	UK NMD	Number - multiplication and division
Key Stage 2 Year 5	UK NMD.1	Pupils should be taught to: identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
Key Stage 2 Year 5	UK NMD.2	Pupils should be taught to: know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers
Key Stage 2 Year 5	UK NMD.3	Pupils should be taught to: establish whether a number up to 100 is prime and recall prime numbers up to 19
Key Stage 2 Year 5	UK NMD.4	Pupils should be taught to: 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
Key Stage 2 Year 5	UK NMD.5	Pupils should be taught to: multiply and divide numbers mentally drawing upon known facts
Key Stage 2 Year 5	UK NMD.6	Pupils should be taught to: 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
Key Stage 2 Year 5	UK NMD.7	Pupils should be taught to: multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
Key Stage 2 Year 5	UK NMD.8	Pupils should be taught to: recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)
Key Stage 2 Year 5	UK NMD.9	Pupils should be taught to: solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes
Key Stage 2 Year 5	UK NMD.10	Pupils should be taught to: solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
Key Stage 2 Year 5	UK NMD.11	Pupils should be taught to: solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.
Key Stage 2 Year 5	UK NF	Number - fractions (including decimals and percentages)
Key Stage 2 Year 5	UK NF.1	Pupils should be taught to: compare and order fractions whose denominators are all multiples of the same number
Key Stage 2 Year 5	UK NF.2	Pupils should be taught to: identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
Key Stage 2 Year 5	UK NF.3	Pupils should be taught to: 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, $2/5 + 4/5 = 6/5 = 1\ 1/5$ ]
Key Stage 2 Year 5	UK NF.4	Pupils should be taught to: add and subtract fractions with the same denominator and denominators that are multiples of the same number
Key Stage 2 Year 5	UK NF.5	Pupils should be taught to: multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
Key Stage 2 Year 5	UK NF.6	Pupils should be taught to: read and write decimal numbers as fractions [for example, $0.71 = 71/100$ ]





Key Stage 2 Year 5	UK NF.7	Pupils should be taught to: recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
Key Stage 2 Year 5	UK NF.8	Pupils should be taught to: round decimals with two decimal places to the nearest whole number and to one decimal place
Key Stage 2 Year 5	UK NF.9	Pupils should be taught to: read, write, order and compare numbers with up to three decimal places
Key Stage 2 Year 5	UK NF.10	Pupils should be taught to: solve problems involving number up to three decimal places
Key Stage 2 Year 5	UK NF.11	Pupils should be taught to: 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
Key Stage 2 Year 5	UK NF.12	Pupils should be taught to: 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.
Key Stage 2 Year 5	UK M	Measurement
Key Stage 2 Year 5	UK M.1	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)
Key Stage 2 Year 5	UK M.2	Pupils should be taught to: understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
Key Stage 2 Year 5	UK M.3	Pupils should be taught to: measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
Key Stage 2 Year 5	UK M.4	Pupils should be taught to: calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm <sup>2</sup> ) and square metres (m <sup>2</sup> ) and estimate the area of irregular shapes
Key Stage 2 Year 5	UK M.5	Pupils should be taught to: estimate volume [for example, using 1 cm <sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example, using water]
Key Stage 2 Year 5	UK M.6	Pupils should be taught to: solve problems involving converting between units of time
Key Stage 2 Year 5	UK M.7	Pupils should be taught to: use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.
Key Stage 2 Year 5	UK GPS	Geometry - properties of shapes
Key Stage 2 Year 5	UK GPS.1	Pupils should be taught to: identify 3-D shapes, including cubes and other cuboids, from 2-D representations
Key Stage 2 Year 5	UK GPS.2	Pupils should be taught to: know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
Key Stage 2 Year 5	UK GPS.2	Pupils should be taught to: know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
Key Stage 2 Year 5	UK GPS.3	Pupils should be taught to: draw given angles, and measure them in degrees (°)
Key Stage 2 Year 5	UK GPS.4	identify:
Key Stage 2 Year 5	UK GPS.4.a	Pupils should be taught to: identify: angles at a point and one whole turn (total 360°)
Key Stage 2 Year 5	UK GPS.4.b	Pupils should be taught to: identify: angles at a point on a straight line and 1/2 a turn (total 180°)
Key Stage 2 Year 5	UK GPS.4.c	Pupils should be taught to: identify: other multiples of 90°
Key Stage 2 Year 5	UK GPS.5	Pupils should be taught to: use the properties of rectangles to deduce related facts and find missing lengths and angles
Key Stage 2 Year 5	UK GPS.6	Pupils should be taught to: distinguish between regular and irregular polygons based on reasoning about equal sides and angles.
Key Stage 2 Year 5	UK GPD	Geometry - position and direction
Key Stage 2 Year 5	UK GPD.1	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.
Key Stage 2 Year 5	UK S	Statistics
Key Stage 2 Year 5	UK S.1	Pupils should be taught to: solve comparison, sum and difference problems using information presented in a line graph
Key Stage 2 Year 5	UK S.2	Pupils should be taught to: complete, read and interpret information in tables, including timetables.
Key Stage 2 Year 6	UK NPV	Number - number and place value
Key Stage 2 Year 6	UK NPV.1	Pupils should be taught to: read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
Key Stage 2 Year 6	UK NPV.2	Pupils should be taught to: round any whole number to a required degree of accuracy
Key Stage 2 Year 6	UK NPV.3	Pupils should be taught to: use negative numbers in context, and calculate intervals across zero
Key Stage 2 Year 6	UK NPV.4	Pupils should be taught to: solve number and practical problems that involve all of the above.
Key Stage 2 Year 6	UK NASMD	Number - addition, subtraction, multiplication and division
Key Stage 2 Year 6	UK NASMD.1	Pupils should be taught to: multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
Key Stage 2 Year 6	UK NASMD.2	Pupils should be taught to: 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
Key Stage 2 Year 6	UK NASMD.3	Pupils should be taught to: 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
Key Stage 2 Year 6	UK NASMD.4	Pupils should be taught to: perform mental calculations, including with mixed operations and large numbers
Key Stage 2 Year 6	UK NASMD.5	Pupils should be taught to: identify common factors, common multiples and prime numbers
Key Stage 2 Year 6	UK NASMD.6	Pupils should be taught to: use their knowledge of the order of operations to carry out calculations involving the four operations
Key Stage 2 Year 6	UK NASMD.7	Pupils should be taught to: solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
Key Stage 2 Year 6	UK NASMD.8	Pupils should be taught to: solve problems involving addition, subtraction, multiplication and division
Key Stage 2 Year 6	UK NASMD.9	Pupils should be taught to: use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.



Key Stage 2 Year 6	UK NF	Number - fractions (including decimals and percentages)
Key Stage 2 Year 6	UK NF.1	Pupils should be taught to: use common factors to simplify fractions; use common multiples to express fractions in the same denomination
Key Stage 2 Year 6	UK NF.2	Pupils should be taught to: compare and order fractions, including fractions $> 1$
Key Stage 2 Year 6	UK NF.3	Pupils should be taught to: add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
Key Stage 2 Year 6	UK NF.4	Pupils should be taught to: multiply simple pairs of proper fractions, writing the answer in its simplest form [for example $1/4 \times 1/2 = 1/8$ ]
Key Stage 2 Year 6	UK NF.5	Pupils should be taught to: divide proper fractions by whole numbers [for example, $1/3 \div 2 = 1/6$ ]
Key Stage 2 Year 6	UK NF.6	Pupils should be taught to: associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $3/8$ ]
Key Stage 2 Year 6	UK NF.7	Pupils should be taught to: identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places
Key Stage 2 Year 6	UK NF.8	Pupils should be taught to: multiply one-digit numbers with up to two decimal places by whole numbers
Key Stage 2 Year 6	UK NF.9	Pupils should be taught to: use written division methods in cases where the answer has up to two decimal places
Key Stage 2 Year 6	UK NF.10	Pupils should be taught to: solve problems which require answers to be rounded to specified degrees of accuracy
Key Stage 2 Year 6	UK NF.11	Pupils should be taught to: recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
Key Stage 2 Year 6	UK RP	Ratio and proportion
Key Stage 2 Year 6	UK RP.1	Pupils should be taught to: solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
Key Stage 2 Year 6	UK RP.2	Pupils should be taught to: solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison
Key Stage 2 Year 6	UK RP.3	Pupils should be taught to: solve problems involving similar shapes where the scale factor is known or can be found
Key Stage 2 Year 6	UK RP.4	Pupils should be taught to: solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
Key Stage 2 Year 6	UK A	Algebra
Key Stage 2 Year 6	UK A.1	Pupils should be taught to: use simple formulae
Key Stage 2 Year 6	UK A.2	Pupils should be taught to: generate and describe linear number sequences
Key Stage 2 Year 6	UK A.3	Pupils should be taught to: express missing number problems algebraically
Key Stage 2 Year 6	UK A.4	Pupils should be taught to: find pairs of numbers that satisfy an equation with two unknowns
Key Stage 2 Year 6	UK A.5	Pupils should be taught to: enumerate possibilities of combinations of two variables.
Key Stage 2 Year 6	UK M	Measurement
Key Stage 2 Year 6	UK M.1	Pupils should be taught to: solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
Key Stage 2 Year 6	UK M.2	Pupils should be taught to: 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 three decimal places
Key Stage 2 Year 6	UK M.3	Pupils should be taught to: convert between miles and kilometres
Key Stage 2 Year 6	UK M.4	Pupils should be taught to: recognise that shapes with the same areas can have different perimeters and vice versa
Key Stage 2 Year 6	UK M.5	Pupils should be taught to: recognise when it is possible to use formulae for area and volume of shapes
Key Stage 2 Year 6	UK M.6	Pupils should be taught to: calculate the area of parallelograms and triangles
Key Stage 2 Year 6	UK M.7	Pupils should be taught to: calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm <sup>3</sup> ) and cubic metres (m <sup>3</sup> ), and extending to other units [for example, mm <sup>3</sup> and km <sup>3</sup> ].
Key Stage 2 Year 6	UK GPS	Geometry - properties of shapes
Key Stage 2 Year 6	UK GPS.1	Pupils should be taught to: draw 2-D shapes using given dimensions and angles
Key Stage 2 Year 6	UK GPS.2	Pupils should be taught to: recognise, describe and build simple 3-D shapes, including making nets
Key Stage 2 Year 6	UK GPS.3	Pupils should be taught to: compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
Key Stage 2 Year 6	UK GPS.4	Pupils should be taught to: illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
Key Stage 2 Year 6	UK GPS.5	Pupils should be taught to: recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
Key Stage 2 Year 6	UK GPD	Geometry - position and direction
Key Stage 2 Year 6	UK GPD.1	Pupils should be taught to: describe positions on the full coordinate grid (all four quadrants)
Key Stage 2 Year 6	UK GPD.2	Pupils should be taught to: draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
Key Stage 2 Year 6	UK S	Statistics
Key Stage 2 Year 6	UK S.1	Pupils should be taught to: interpret and construct pie charts and line graphs and use these to solve problems
Key Stage 2 Year 6	UK S.2	Pupils should be taught to: calculate and interpret the mean as an average.
Key Stage 3	UK WM	Working mathematically
Key Stage 3	UK WM.DF	Develop fluency



Key Stage 3	UK WM.DF.1	Pupils should be taught to: consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions, powers and roots
Key Stage 3	UK WM.DF.2	Pupils should be taught to: select and use appropriate calculation strategies to solve increasingly complex problems
Key Stage 3	UK WM.DF.2	Pupils should be taught to: select and use appropriate calculation strategies to solve increasingly complex problems
Key Stage 3	UK WM.DF.2	Pupils should be taught to: select and use appropriate calculation strategies to solve increasingly complex problems
Key Stage 3	UK WM.DF.3	Pupils should be taught to: use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships
Key Stage 3	UK WM.DF.4	Pupils should be taught to: substitute values in expressions, rearrange and simplify expressions, and solve equations
Key Stage 3	UK WM.DF.5	Pupils should be taught to: move freely between different numerical, algebraic, graphical and diagrammatic representations [for example, equivalent fractions, fractions and decimals, and equations and graphs]
Key Stage 3	UK WM.DF.6	Pupils should be taught to: develop algebraic and graphical fluency, including understanding linear and simple quadratic functions
Key Stage 3	UK WM.DF.7	Pupils should be taught to: use language and properties precisely to analyse numbers, algebraic expressions, 2-D and 3-D shapes, probability and statistics.
Key Stage 3	UK WM.RM	Reason mathematically
Key Stage 3	UK WM.RM.1	Pupils should be taught to: extend their understanding of the number system; make connections between number relationships, and their algebraic and graphical representations
Key Stage 3	UK WM.RM.2	Pupils should be taught to: extend and formalise their knowledge of ratio and proportion in working with measures and geometry, and in formulating proportional relations algebraically
Key Stage 3	UK WM.RM.3	Pupils should be taught to: identify variables and express relations between variables algebraically and graphically
Key Stage 3	UK WM.RM.4	Pupils should be taught to: make and test conjectures about patterns and relationships; look for proofs or counter-examples
Key Stage 3	UK WM.RM.5	Pupils should be taught to: begin to reason deductively in geometry, number and algebra, including using geometrical constructions
Key Stage 3	UK WM.RM.6	Pupils should be taught to: interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning
Key Stage 3	UK WM.RM.7	Pupils should be taught to: explore what can and cannot be inferred in statistical and probabilistic settings, and begin to express their arguments formally.
Key Stage 3	UK WM.SP	Solve problems
Key Stage 3	UK WM.SP.1	Pupils should be taught to: develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems
Key Stage 3	UK WM.SP.2	Pupils should be taught to: develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics
Key Stage 3	UK WM.SP.3	Pupils should be taught to: begin to model situations mathematically and express the results using a range of formal mathematical representations
Key Stage 3	UK WM.SP.4	Pupils should be taught to: select appropriate concepts, methods and techniques to apply to unfamiliar and non-routine problems.
Key Stage 3	UK N	Number
Key Stage 3	UK N.1	Pupils should be taught to: understand and use place value for decimals, measures and integers of any size
Key Stage 3	UK N.2	Pupils should be taught to: order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, is not equal to, <, >, is less than or equal to, is greater than or equal to
Key Stage 3	UK N.3	Pupils should be taught to: use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property
Key Stage 3	UK N.4	Pupils should be taught to: use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative
Key Stage 3	UK N.5	Pupils should be taught to: use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals
Key Stage 3	UK N.6	Pupils should be taught to: recognise and use relationships between operations including inverse operations
Key Stage 3	UK N.7	Pupils should be taught to: use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations
Key Stage 3	UK N.8	Pupils should be taught to: interpret and compare numbers in standard form $A \times 10$ to the $n$ power 1 is less than or equal to $A < 10$ , where $n$ is a positive or negative integer or zero
Key Stage 3	UK N.9	Pupils should be taught to: work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and $\frac{7}{2}$ or 0.375 and $\frac{3}{8}$ )
Key Stage 3	UK N.10	Pupils should be taught to: define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities using percentages, and work with percentages greater than 100%
Key Stage 3	UK N.11	Pupils should be taught to: interpret fractions and percentages as operators
Key Stage 3	UK N.12	Pupils should be taught to: use standard units of mass, length, time, money and other measures, including with decimal quantities



Key Stage 3	UK N.13	Pupils should be taught to: round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures]
Key Stage 3	UK N.14	Pupils should be taught to: use approximation through rounding to estimate answers and calculate possible resulting errors expressed using inequality notation $a < x$ is less than or equal to $b$
Key Stage 3	UK N.15	Pupils should be taught to: use a calculator and other technologies to calculate results accurately and then interpret them appropriately
Key Stage 3	UK N.16	Pupils should be taught to: appreciate the infinite nature of the sets of integers, real and rational numbers.
Key Stage 3	UK A	Algebra
Key Stage 3	UK A.1	Pupils should be taught to: use and interpret algebraic notation, including:
Key Stage 3	UK A.1.1	Pupils should be taught to: use and interpret algebraic notation, including: $ab$ in place of $a \times b$
Key Stage 3	UK A.1.2	Pupils should be taught to: use and interpret algebraic notation, including: $3y$ in place of $y + y + y$ and $3 \times y$
Key Stage 3	UK A.1.3	Pupils should be taught to: use and interpret algebraic notation, including: $a^2$ in place of $a \times a$ , $a^3$ in place of $a \times a \times a$ ; $a^2b$ in place of $a \times a \times b$
Key Stage 3	UK A.1.4	Pupils should be taught to: use and interpret algebraic notation, including: $a/b$ in place of $a \div b$
Key Stage 3	UK A.1.5	Pupils should be taught to: use and interpret algebraic notation, including: coefficients written as fractions rather than as decimals
Key Stage 3	UK A.1.6	Pupils should be taught to: use and interpret algebraic notation, including: brackets
Key Stage 3	UK A.2	Pupils should be taught to: substitute numerical values into formulae and expressions, including scientific formulae
Key Stage 3	UK A.3	Pupils should be taught to: understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors
Key Stage 3	UK A.4	simplify and manipulate algebraic expressions to maintain equivalence by:
Key Stage 3	UK A.4.1	Pupils should be taught to: simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms
Key Stage 3	UK A.4.2	Pupils should be taught to: simplify and manipulate algebraic expressions to maintain equivalence by: multiplying a single term over a bracket
Key Stage 3	UK A.4.3	Pupils should be taught to: simplify and manipulate algebraic expressions to maintain equivalence by: taking out common factors
Key Stage 3	UK A.4.4	Pupils should be taught to: simplify and manipulate algebraic expressions to maintain equivalence by: expanding products of two or more binomials
Key Stage 3	UK A.5	Pupils should be taught to: understand and use standard mathematical formulae; rearrange formulae to change the subject
Key Stage 3	UK A.6	Pupils should be taught to: model situations or procedures by translating them into algebraic expressions or formulae and by using graphs
Key Stage 3	UK A.7	Pupils should be taught to: use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement)
Key Stage 3	UK A.8	Pupils should be taught to: work with coordinates in all four quadrants
Key Stage 3	UK A.9	Pupils should be taught to: 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
Key Stage 3	UK A.10	Pupils should be taught to: interpret mathematical relationships both algebraically and graphically
Key Stage 3	UK A.11	Pupils should be taught to: reduce a given linear equation in two variables to the standard form $y = mx + c$ ; calculate and interpret gradients and intercepts of graphs of such linear equations numerically, graphically and algebraically
Key Stage 3	UK A.12	Pupils should be taught to: use linear and quadratic graphs to estimate values of $y$ for given values of $x$ and vice versa and to find approximate solutions of simultaneous linear equations
Key Stage 3	UK A.13	Pupils should be taught to: find approximate solutions to contextual problems from given graphs of a variety of functions, including piece-wise linear, exponential and reciprocal graphs
Key Stage 3	UK A.14	Pupils should be taught to: generate terms of a sequence from either a term-to-term or a position-to-term rule
Key Stage 3	UK A.15	Pupils should be taught to: recognise arithmetic sequences and find the $n$ th term
Key Stage 3	UK A.16	Pupils should be taught to: recognise geometric sequences and appreciate other sequences that arise.
Key Stage 3	UK RP	Ratio, proportion and rates of change
Key Stage 3	UK RP.1	Pupils should be taught to: change freely between related standard units [for example time, length, area, volume/capacity, mass]
Key Stage 3	UK RP.2	Pupils should be taught to: use scale factors, scale diagrams and maps
Key Stage 3	UK RP.3	Pupils should be taught to: express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1
Key Stage 3	UK RP.4	Pupils should be taught to: use ratio notation, including reduction to simplest form
Key Stage 3	UK RP.5	Pupils should be taught to: 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
Key Stage 3	UK RP.6	Pupils should be taught to: understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction
Key Stage 3	UK RP.7	Pupils should be taught to: relate the language of ratios and the associated calculations to the arithmetic of fractions and to linear functions
Key Stage 3	UK RP.8	Pupils should be taught to: solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics
Key Stage 3	UK RP.9	Pupils should be taught to: solve problems involving direct and inverse proportion, including graphical and algebraic representations
Key Stage 3	UK RP.10	Pupils should be taught to: use compound units such as speed, unit pricing and density to solve problems.
Key Stage 3	UK GM	Geometry and measures





Key Stage 3	UK GM.1	Pupils should be taught to: derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders)
Key Stage 3	UK GM.2	Pupils should be taught to: calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes
Key Stage 3	UK GM.3	Pupils should be taught to: draw and measure line segments and angles in geometric figures, including interpreting scale drawings
Key Stage 3	UK GM.4	Pupils should be taught to: derive and use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); recognise and use the perpendicular distance from a point to a line as the shortest distance to the line
Key Stage 3	UK GM.5	Pupils should be taught to: describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric
Key Stage 3	UK GM.6	Pupils should be taught to: use the standard conventions for labelling the sides and angles of triangle ABC, and know and use the criteria for congruence of triangles
Key Stage 3	UK GM.7	Pupils should be taught to: derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies
Key Stage 3	UK GM.8	Pupils should be taught to: identify properties of, and describe the results of, translations, rotations and reflections applied to given figures
Key Stage 3	UK GM.9	Pupils should be taught to: identify and construct congruent triangles, and construct similar shapes by enlargement, with and without coordinate grids
Key Stage 3	UK GM.10	Pupils should be taught to: apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles
Key Stage 3	UK GM.11	Pupils should be taught to: understand and use the relationship between parallel lines and alternate and corresponding angles
Key Stage 3	UK GM.12	Pupils should be taught to: derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons
Key Stage 3	UK GM.13	Pupils should be taught to: apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides, including Pythagoras' Theorem, and use known results to obtain simple proofs
Key Stage 3	UK GM.14	Pupils should be taught to: use Pythagoras' Theorem and trigonometric ratios in similar triangles to solve problems involving right-angled triangles
Key Stage 3	UK GM.15	Pupils should be taught to: use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3-D
Key Stage 3	UK GM.16	Pupils should be taught to: interpret mathematical relationships both algebraically and geometrically.
Key Stage 3	UK P	Probability
Key Stage 3	UK P.1	Pupils should be taught to: record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale
Key Stage 3	UK P.2	Pupils should be taught to: understand that the probabilities of all possible outcomes sum to 1
Key Stage 3	UK P.3	Pupils should be taught to: enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams
Key Stage 3	UK P.4	Pupils should be taught to: generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes and use these to calculate theoretical probabilities.
Key Stage 3	UK S	Statistics
Key Stage 3	UK S.1	Pupils should be taught to: describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers)
Key Stage 3	UK S.2	Pupils should be taught to: construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data
Key Stage 3	UK S.3	Pupils should be taught to: describe simple mathematical relationships between two variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs.
Key Stage 4	UK WM	Working mathematically
Key Stage 4	UK WM.DF	Develop fluency
Key Stage 4	UK WM.DF.1	Pupils should be taught to: consolidate their numerical and mathematical capability from key stage 3 and extend their understanding of the number system to include powers, roots (and fractional indices)
Key Stage 4	UK WM.DF.2	Pupils should be taught to: select and use appropriate calculation strategies to solve increasingly complex problems, including exact calculations involving multiples of pi (and surds), use of standard form and application and interpretation of limits of accuracy
Key Stage 4	UK WM.DF.3	Pupils should be taught to: consolidate their algebraic capability from key stage 3 and extend their understanding of algebraic simplification and manipulation to include quadratic expressions, (and expressions involving surds and algebraic fractions)
Key Stage 4	UK WM.DF.4	Pupils should be taught to: extend fluency with expressions and equations from key stage 3, to include quadratic equations, simultaneous equations and inequalities
Key Stage 4	UK WM.DF.5	Pupils should be taught to: move freely between different numerical, algebraic, graphical and diagrammatic representations, including of linear, quadratic, reciprocal, (exponential and trigonometric) functions
Key Stage 4	UK WM.DF.6	Pupils should be taught to: use mathematical language and properties precisely.
Key Stage 4	UK WM.RM	Reason mathematically



Key Stage 4	UK WM.RM.1	Pupils should be taught to: extend and formalise their knowledge of ratio and proportion, including trigonometric ratios, in working with measures and geometry, and in working with proportional relations algebraically and graphically
Key Stage 4	UK WM.RM.2	Pupils should be taught to: extend their ability to identify variables and express relations between variables algebraically and graphically
Key Stage 4	UK WM.RM.3	Pupils should be taught to: make and test conjectures about the generalisations that underlie patterns and relationships; look for proofs or counter-examples; begin to use algebra to support and construct arguments (and proofs)
Key Stage 4	UK WM.RM.4	Pupils should be taught to: reason deductively in geometry, number and algebra, including using geometrical constructions
Key Stage 4	UK WM.RM.5	Pupils should be taught to: interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning
Key Stage 4	UK WM.RM.6	Pupils should be taught to: explore what can and cannot be inferred in statistical and probabilistic settings, and express their arguments formally
Key Stage 4	UK WM.RM.7	Pupils should be taught to: assess the validity of an argument and the accuracy of a given way of presenting information.
Key Stage 4	UK WM.SP	Solve problems
Key Stage 4	UK WM.SP.1	Pupils should be taught to: develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems
Key Stage 4	UK WM.SP.2	Pupils should be taught to: develop their use of formal mathematical knowledge to interpret and solve problems, including in financial contexts
Key Stage 4	UK WM.SP.3	Pupils should be taught to: make and use connections between different parts of mathematics to solve problems
Key Stage 4	UK WM.SP.4	Pupils should be taught to: model situations mathematically and express the results using a range of formal mathematical representations, reflecting on how their solutions may have been affected by any modelling assumptions
Key Stage 4	UK WM.SP.5	Pupils should be taught to: select appropriate concepts, methods and techniques to apply to unfamiliar and non-routine problems; interpret their solution in the context of the given problem.
Key Stage 4	UK N	Number
Key Stage 4	UK N.1	Pupils should be taught to: apply systematic listing strategies, (including use of the product rule for counting)
Key Stage 4	UK N.2	Pupils should be taught to: (estimate powers and roots of any given positive number)
Key Stage 4	UK N.3	Pupils should be taught to: calculate with roots, and with integer (and fractional) indices
Key Stage 4	UK N.4	Pupils should be taught to: calculate exactly with fractions, (surds) and multiples of pi ; (simplify surd expressions involving squares [for example the square root of 12 = the square root of (4 x 3) = the square root of 4 x the square root of 3 = 2 the square root of 3] and rationalise denominators)
Key Stage 4	UK N.5	Pupils should be taught to: calculate with numbers in standard form $A \times 10^n$ , where 1 is less than or equal to $A < 10$ and $n$ is an integer
Key Stage 4	UK N.6	Pupils should be taught to: (change recurring decimals into their corresponding fractions and vice versa)
Key Stage 4	UK N.7	Pupils should be taught to: identify and work with fractions in ratio problems
Key Stage 4	UK N.8	Pupils should be taught to: apply and interpret limits of accuracy when rounding or truncating, (including upper and lower bounds).
Key Stage 4	UK A	Algebra
Key Stage 4	UK A.1	simplify and manipulate algebraic expressions (including those involving surds (and algebraic fractions)) by:
Key Stage 4	UK A.1.1	Pupils should be taught to: simplify and manipulate algebraic expressions (including those involving surds (and algebraic fractions)) by: factorising quadratic expressions of the form $x^2 + bx + c$ , including the difference of two squares; (factorising quadratic expressions of the form $ax^2 + bx + c$ )
Key Stage 4	UK A.1.2	Pupils should be taught to: simplify and manipulate algebraic expressions (including those involving surds (and algebraic fractions)) by: simplifying expressions involving sums, products and powers, including the laws of indices
Key Stage 4	UK A.2	Pupils should be taught to: know the difference between an equation and an identity; argue mathematically to show algebraic expressions are equivalent, and use algebra to support and construct arguments (and proofs)
Key Stage 4	UK A.3	Pupils should be taught to: where appropriate, interpret simple expressions as functions with inputs and outputs; (interpret the reverse process as the 'inverse function'; interpret the succession of two functions as a 'composite function')
Key Stage 4	UK A.4	Pupils should be taught to: use the form $y = mx + c$ to identify parallel (and perpendicular) lines; find the equation of the line through two given points, or through one point with a given gradient
Key Stage 4	UK A.5	Pupils should be taught to: identify and interpret roots, intercepts and turning points of quadratic functions graphically; deduce roots algebraically (and turning points by completing the square)
Key Stage 4	UK A.6	Pupils should be taught to: recognise, sketch and interpret graphs of linear functions, quadratic functions, simple cubic functions, the reciprocal function $y = 1/x$ with $x$ is not equal to 0, (the exponential function $y = k$ to the $x$ power for positive values of $k$ , and the trigonometric functions (with arguments in degrees) $y = \sin x$ , $y = \cos x$ and $y = \tan x$ for angles of any size)
Key Stage 4	UK A.7	Pupils should be taught to: (sketch translations and reflections of the graph of a given function)
Key Stage 4	UK A.8	Pupils should be taught to: plot and interpret graphs (including reciprocal graphs (and exponential graphs)) and graphs of non-standard functions in real contexts, to find approximate solutions to problems such as simple kinematic problems involving distance, speed and acceleration
Key Stage 4	UK A.9	Pupils should be taught to: (calculate or estimate gradients of graphs and areas under graphs (including quadratic and other non-linear graphs), and interpret results in cases such as distance-time graphs, velocity-time graphs and graphs in financial contexts)



Key Stage 4	UK A.10	Pupils should be taught to: {recognise and use the equation of a circle with centre at the origin; find the equation of a tangent to a circle at a given point}
Key Stage 4	UK A.11	Pupils should be taught to: solve quadratic equations {including those that require rearrangement} algebraically by factorising, {by completing the square and by using the quadratic formula}; find approximate solutions using a graph
Key Stage 4	UK A.12	Pupils should be taught to: solve two simultaneous equations in two variables (linear/linear {or linear/quadratic}) algebraically; find approximate solutions using a graph
Key Stage 4	UK A.13	Pupils should be taught to: {find approximate solutions to equations numerically using iteration}
Key Stage 4	UK A.14	Pupils should be taught to: translate simple situations or procedures into algebraic expressions or formulae; derive an equation {or two simultaneous equations}, solve the equation(s) and interpret the solution
Key Stage 4	UK A.15	Pupils should be taught to: solve linear inequalities in one {or two} variable(s), {and quadratic inequalities in one variable}; represent the solution set on a number line, {using set notation and on a graph}
Key Stage 4	UK A.16	Pupils should be taught to: recognise and use sequences of triangular, square and cube numbers, simple arithmetic progressions, Fibonacci type sequences, quadratic sequences, and simple geometric progressions ( $r^n$ where $n$ is an integer, and $r$ is a positive rational number {or a surd}) {and other sequences}
Key Stage 4	UK A.17	Pupils should be taught to: deduce expressions to calculate the $n$ th term of linear {and quadratic} sequences.
Key Stage 4	UK RP	Ratio, proportion and rates of change
Key Stage 4	UK RP.1	Pupils should be taught to: compare lengths, areas and volumes using ratio notation and/or scale factors; make links to similarity (including trigonometric ratios)
Key Stage 4	UK RP.2	Pupils should be taught to: convert between related compound units (speed, rates of pay, prices, density, pressure) in numerical and algebraic contexts
Key Stage 4	UK RP.3	Pupils should be taught to: understand that $X$ is inversely proportional to $Y$ is equivalent to $X$ is proportional to $1/Y$ ; {construct and} interpret equations that describe direct and inverse proportion
Key Stage 4	UK RP.4	Pupils should be taught to: interpret the gradient of a straight line graph as a rate of change; recognise and interpret graphs that illustrate direct and inverse proportion
Key Stage 4	UK RP.5	Pupils should be taught to: {interpret the gradient at a point on a curve as the instantaneous rate of change; apply the concepts of instantaneous and average rate of change (gradients of tangents and chords) in numerical, algebraic and graphical contexts}
Key Stage 4	UK RP.6	Pupils should be taught to: set up, solve and interpret the answers in growth and decay problems, including compound interest {and work with general iterative processes}.
Key Stage 4	UK GM	Geometry and measures
Key Stage 4	UK GM.1	Pupils should be taught to: interpret and use fractional {and negative} scale factors for enlargements
Key Stage 4	UK GM.2	Pupils should be taught to: {describe the changes and invariance achieved by combinations of rotations, reflections and translations}
Key Stage 4	UK GM.3	Pupils should be taught to: identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment
Key Stage 4	UK GM.4	Pupils should be taught to: {apply and prove the standard circle theorems concerning angles, radii, tangents and chords, and use them to prove related results}
Key Stage 4	UK GM.5	Pupils should be taught to: construct and interpret plans and elevations of 3D shapes
Key Stage 4	UK GM.6	Pupils should be taught to: interpret and use bearings
Key Stage 4	UK GM.7	Pupils should be taught to: calculate arc lengths, angles and areas of sectors of circles
Key Stage 4	UK GM.8	Pupils should be taught to: calculate surface areas and volumes of spheres, pyramids, cones and composite solids
Key Stage 4	UK GM.9	Pupils should be taught to: apply the concepts of congruence and similarity, including the relationships between lengths, {areas and volumes} in similar figures
Key Stage 4	UK GM.10	Pupils should be taught to: apply Pythagoras' Theorem and trigonometric ratios to find angles and lengths in right-angled triangles {and, where possible, general triangles} in two {and three} dimensional figures
Key Stage 4	UK GM.11	Pupils should be taught to: know the exact values of $\sin \theta$ and $\cos \theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ, 60^\circ$ and $90^\circ$ ; know the exact value of $\tan \theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ$ and $60^\circ$
Key Stage 4	UK GM.12	Pupils should be taught to: {know and apply the sine rule, $a/\sin A = b/\sin B = c/\sin C$ , and cosine rule, $a^2 = b^2 + c^2 - 2bc \cos A$ , to find unknown lengths and angles}
Key Stage 4	UK GM.13	Pupils should be taught to: {know and apply $\text{Area} = 1/2 ab \sin C$ to calculate the area, sides or angles of any triangle}
Key Stage 4	UK GM.14	Pupils should be taught to: describe translations as 2D vectors
Key Stage 4	UK GM.15	Pupils should be taught to: apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors; {use vectors to construct geometric arguments and proofs}.
Key Stage 4	UK P	Probability
Key Stage 4	UK P.1	Pupils should be taught to: apply the property that the probabilities of an exhaustive set of mutually exclusive events sum to one
Key Stage 4	UK P.2	Pupils should be taught to: use a probability model to predict the outcomes of future experiments; understand that empirical unbiased samples tend towards theoretical probability distributions, with increasing sample size
Key Stage 4	UK P.3	Pupils should be taught to: calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions
Key Stage 4	UK P.4	Pupils should be taught to: {calculate and interpret conditional probabilities through representation using expected frequencies with two-way tables, tree diagrams and Venn diagrams}.
Key Stage 4	UK S	Statistics
Key Stage 4	UK S.1	Pupils should be taught to: infer properties of populations or distributions from a sample, whilst knowing the limitations of sampling



Key Stage 4	UK S.2	Pupils should be taught to: interpret and construct tables and line graphs for time series data
Key Stage 4	UK S.3	Pupils should be taught to: {construct and interpret diagrams for grouped discrete data and continuous data, i.e. histograms with equal and unequal class intervals and cumulative frequency graphs, and know their appropriate use}
Key Stage 4	UK S.4	interpret, analyse and compare the distributions of data sets from univariate empirical distributions through:
Key Stage 4	UK S.4.1	Pupils should be taught to: interpret, analyse and compare the distributions of data sets from univariate empirical distributions through: appropriate graphical representation involving discrete, continuous and grouped data, {including box plots}
Key Stage 4	UK S.4.2	Pupils should be taught to: interpret, analyse and compare the distributions of data sets from univariate empirical distributions through: appropriate measures of central tendency (including modal class) and spread {including quartiles and inter-quartile range}
Key Stage 4	UK S.5	Pupils should be taught to: apply statistics to describe a population
Key Stage 4	UK S.6	Pupils should be taught to: use and interpret scatter graphs of bivariate data; recognise correlation and know that it does not indicate causation; draw estimated lines of best fit; make predictions; interpolate and extrapolate apparent trends whilst knowing the dangers of so doing.