

Place Value	Year 3	Year 4	Year 5	Year 6
Counting	Count from 0 in multiples of 4, 8, 50 and 100. Find 10 or 100 more or less than a given number.	Count in multiples of 6,7,9,26 and 1000. Count backwards through zero to include negative numbers.	Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000. Count forwards and backwards with positive and negative whole numbers, including through 0.	
Representation	Identify represent and estimate numbers using different representations. Read and write numbers up to 1000 in numerals and in words.	Identify represent and estimate numbers using different representations. Read Roman numerals to 100 (I to C) and know that over time the numeral system changed to include the concept of 0 and place value.	Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit. Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	Read, write, order and compare numbers to at least 10,000,000 and determine the value of each digit.
Comparison	Recognise the place value of each digit in a three-digit number. Compare and order numbers up to 1000.	Find 1000 more or less than a given number. Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones) Order and compare numbers beyond 1000.	Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit.	Read, write, order and compare numbers to at least 10,000,000 and determine the value of each digit.
Rounding and problem solving	Solve number problems and practical problems involving the above ideas.	Round any number to the nearest 10, 100 or 1000. Solve number and practical problems that involve the above ideas with increasingly large positive numbers.	Interpret negative numbers in context Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000, and 100,000.	Round any whole number to a required degree of accuracy. Use negative numbers in context and calculate intervals across zero.

			Solve number and practical problems that involve the above ideas.	Solve number and practical problems that involve the above ideas.
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Addition and Subtraction	Year 3	Year 4	Year 5	Year 6
Recall, Represent, Use	Estimate the answer to a calculation and use the inverse operation to check.	Estimate the answer to a calculation and use the inverse operation to check.	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.	
Calculations	Add and subtract numbers mentally including <ul style="list-style-type: none"> - A three-digit number and ones - A three-digit number and tens - A three-digit number and hundreds Add and subtract numbers with up to three digits using formal written method of columnar addition and subtraction.	Add and subtract numbers with up to 4 digits using formal written method of columnar addition and subtraction where appropriate.	Add and subtract numbers with more than 4 digits using formal written method of columnar addition and subtraction. Add and subtract numbers mentally with increasingly large numbers.	Perform mental calculations, including with mixed operations and large numbers. Use their knowledge of the order of operations to carry out calculations involving the four operations.
Problem solving	Solve problems including missing number problems, using number facts, place value and more complex addition and subtraction.	Solve addition and subtraction two-step problems in context, deciding which operations and methods to use and why.	Solve addition and subtraction two-step problems in context, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

			Solve problems involving the four operations and a combination of these including understanding the meaning of the equals sign.	
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Multiplication and division	Year 3	Year 4	Year 5	Year 6
Recall, Represent, Use	Recall and use multiplication and division facts for the 3,4 and 8 multiplication tables.	Recall multiplication and division facts for multiplication tables up to 12 x 12. Use place value, known facts 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.	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 (non-prime) numbers. Establish whether a number up to 100 is prime and recall numbers up to 19. Recognise and use square and cube numbers, and notations for squared and cubed numbers.	Identify common factors, common multiples and prime numbers. Use estimation to check answers to calculations and determine in the context of a problem an appropriate degree of accuracy.
Calculations	Write and calculate mathematical statements for multiplication and division using the multiplication tables they - know, including for two-digit numbers times one-digit numbers, using mental	Multiply two-digit and three-digit numbers by a one-digit number using a formal written layout.	Multiply numbers up to 4 digits by a one-digit number using a formal written method, including long multiplication for two-digit numbers. Divide numbers up to 4 digits by a one-digit number	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 four-digits by a two-digit whole number using the formal

	methods and progressing to formal written methods.		using the formal written methods of short division and interpret remainders appropriately for the context. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.	written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding as appropriate by context. Divide numbers up to 4 digits by a two-digit number using the formal written method for short division where appropriate, interpreting remainders according to the context. Perform mental calculations, including mixed operations and large numbers.
Problem solving	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.	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.	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	Solve problems involving addition, subtraction, multiplication and division.
Combined operations			Solve problems involving addition, subtraction, multiplication and division and a combination of these	Use their knowledge of the order of operations to carry out calculations involving the for operations.

			including understanding the meaning of the equals sign.	
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Fractions, Decimals, Percentages	Year 3	Year 4	Year 5	Year 6
Fractions – Recognise and Write	Count up and down in tenths, recognising 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.	Count up and down in hundredths recognising that hundredths arise when dividing an object by one hundred and dividing ten by ten.	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Recognise mixed number and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number.	
Fractions – Compare	Recognise and show using diagrams, equivalent fractions with small denominators. Compare and order unit fractions and fractions with the same denominator.	Recognise and show using diagrams, families of common equivalent fractions.	Compare and order fractions whose denominators are all multiples of the same number.	Use common factors to simplify fractions, use common multiples to express fractions in the same denomination. Compare and order fractions including fractions >1 .

Fractions – Calculations	Add and subtract fractions with the same denominator within one whole.	Add and subtract fractions with the same denominator.	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.	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. Divide proper fractions by whole numbers.
Fractions – Solve problems	Solve problems that involve all of the above.	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.		
Decimals – Recognise and Write		Recognise and write decimal equivalents of any numbers of tenths or hundredths. Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$.	Read and write decimal numbers as fractions (for example $0.71 = \frac{71}{100}$). Recognise and use thousandths and relate the to tenths, hundredths and decimal equivalents.	Identify the value of each digit in the number given to three decimal places.
Decimals – Compare		Round decimals with one decimal place to the nearest whole number. Compare numbers with the same number of decimal places	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.	

Decimals – Calculations and problems		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.	Solve problems involving number up to three decimal places.	Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places by whole numbers. Use written division methods in cases where the answer has up to two decimal places. Solve problems which require answers to be rounded to specified degrees of accuracy.
Fractions, decimals, percentages		Solve simple measure and money problems involving fractions and decimals to two 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 $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with denominator of a multiple of 10 or 25.	Associate a fraction with division and calculate decimal fraction equivalent (for example, 0.375) or a simple fraction (for example, $\frac{3}{8}$) Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
Ratio and proportion	Year 3	Year 4	Year 5	Year 6
Ratio and proportion				Solve problems involving the relative sizes of two

				<p>quantities where missing values can be found by using integer multiplication and division facts.</p> <p>Solve problems involving calculation of percentages (for example of measures and such as 15% of 360) and the use of percentages for comparison.</p> <p>Solve problems involving similar shapes where the scale factor is known or can be found.</p> <p>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiple.</p>
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Algebra	Year 3	Year 4	Year 5	Year 6
Algebra	Not explicitly taught as algebra but introduced through missing number problems.	Not explicitly taught as algebra but introduced through missing number problems.	Not explicitly taught as algebra but introduced through missing number problems.	<p>Use simple formulae</p> <p>Generate and describe linear number sequences</p> <p>Express missing number problems algebraically.</p> <p>Find pairs of numbers that satisfy an equation with two unknowns.</p> <p>Enumerate possibilities of combination of two variables.</p>

Measurement	Year 3	Year 4	Year 5	Year 6
Using measure	Measure, compare, add and subtract: lengths (m, cm, mm); mass (kg, g); volume/capacity (l, ml)	Convert between units of measure (km to m, hour to minute) Estimate, compare and calculate different measures.	Convert between different units of measures (for example km and m, cm and m, cm and mm, gram and kilogram, litre and millilitre) Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. Use all four operations to solve problems involving measure (for example, length, mass, volume, money) using decimal notation, including scaling.	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three 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 up to three decimal places. Convert between miles and kilometres.
Money	Add and subtract amounts of money to give change, using both £ and p in practical contexts.	Estimate, compare and calculate different measures, including money in pounds and pence.	Use all four operations to solve problems involving measure (for example, money)	
Time	Tell and write the time from an analogue clock, including using Roman Numerals from I to XII and 12 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	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.	Solve problems involving converting between units of time.	Use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit and vice versa.

	o'clock, am/pm, morning, afternoon, noon and midnight. Know the number of seconds in a minute and number of days in each months, year and leap year. Compare durations of events (for example to calculate the time taken by particular events or tasks)			
Perimeter, Area and Volume	Measure the perimeter of simple 2-D shapes.	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. Find the area of rectilinear shapes by counting squares.	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 and square metres and estimate the area of irregular shapes. Estimate volume using blocks to build cuboids and capacity	Recognise that shapes with the same areas can have different perimeters and vice versa. Recognise when it is possible to use formulae for areas and volume of shapes. Calculate the area of parallelograms and triangles. Calculate, estimate and compare volume of cubes and cuboids including using standard units, including cubic centimetres, and cubic metres and extending to other units.

Geometry	Year 3	Year 4	Year 5	Year 6
2D shapes	Draw 2-D shapes.	Compare and classify geometric shapes including	Distinguish between regular and irregular polygons	Draw 2-D shapes using given dimensions and angles.

		quadrilaterals and triangles, based on properties and sizes. Identify lines of symmetry in 2-D shapes presented in different orientations.	based on reasoning about equal sides and angles. Use the properties of rectangles to deduce related facts and find missing lengths and angles.	Compare and classify geometric shapes based on their properties and sizes. Illustrate and name parts of circles including radius, diameter and circumference and know that the diameter is twice the radius.
3D shapes	Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.		Identify 3-D shapes including cubes and other cuboids, from 2-D representations.	Recognise, describe and build simple 3-D shapes including making nets.
Angles and Lines	Recognise angles as a property of a shape or a description of a turn. 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. Identify horizontal and vertical lines and pairs of perpendicular lines.	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.	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. Draw given angles and measure them in degrees. Identify <ul style="list-style-type: none"> - Angles at a point and one whole turn (total 360) - Angles at a point on a straight line and $\frac{1}{2}$ turn (total 180) - Other multiples of 90. 	Find unknown angles in any triangles, quadrilaterals and regular polygons. Recognise angles where they meet at a point, are on a straight line, or are vertically opposite and find missing angles.
Position and Direction		Describe positions on a 2-D grid as coordinates in the first quadrant. Describe movements between positions as given	Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language and	Describe positions on the full coordinate grid (all four quadrants) Draw and translate simple shapes on the coordinate

		translations of a given unit to the left/right and up/down. Plot specified points and draw sides to complete a given polygon.	know that the shape has not change.	plane, and reflect them in the axes.
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Statistics	Year 3	Year 4	Year 5	Year 6
Present and Interpret	Interpret and present data using bar charts, pictograms and tables.	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.	Complete, read and interpret information in tables including timetables.	Interpret and construct pie charts and line graphs and use these to solve problems.
Solve Problems	Solve one-step and two-step problems (for example, 'How many more?' and 'How many fewer?') using information presented in scaled bar charts and pictograms and tables.	Solve comparisons, sum and difference problems using information presented in bar charts, pictograms and tables.	Solve comparison, sum and difference problems using information presented in a line graph.	Calculate and interpret the mean as an average.