

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions, Decimals, Ratio and Percentages	Measures	Geometry	Statistics	Algebra
Y6 Autumn	Read, write, order and compare numbers up to 1 000 000 and determine the value of each digit.	Choose and use an appropriate method to add whole numbers with up to 5 digits.	Multiply multi-digit numbers up to 4 digits by numbers between 10 and 40 using the formal written method of long multiplication.	Convert decimals (up to 3 places) to fractions and vice versa using thousandths, hundredths and tenths.	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate.	Recognise, describe and build simple 3D shapes, including making nets.		Use letters to represent missing numbers in number sentences.
	Use negative numbers in context, and calculate intervals across zero and give generalisations to describe what happens when adding and subtracting with positive and negative numbers.	Choose and use an appropriate mental or written method, including column addition and subtraction, to add and subtract decimal numbers with 1, 2 or 3 decimal places, including in the context of measures and money.	Use short multiplication to multiply numbers with up to 4 digits, including amounts of money, by 1-digit numbers and solve word problems involving multiplication including two-step problems and finding change.	Identify the value of each digit in numbers with up to 3 decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers to up to 3 decimal places; use this knowledge to compare and order numbers, and round numbers, with up to 3 decimal places.	Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places.			Find pairs of numbers that satisfy an equation with two unknowns.
		Use knowledge of the order of operations to carry out calculations involving the four operations.	Use knowledge of the order of operations to carry out calculations involving the four operations.	Compare and order fractions, including fractions > 1 .	Begin to convert between miles and kilometres.			Enumerate possibilities of combinations of two variables.
		Use knowledge of the order of operations and brackets to carry out multi-step calculations involving addition, subtraction, multiplication and division.	Use knowledge of the order of operations and brackets to carry out multi-step calculations involving addition, subtraction, multiplication and division.	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.	Recognise that shapes with the same areas can have different perimeters and vice versa; begin to measure area and perimeter.			
		Choose and use an appropriate method to subtract whole numbers with up to 5 digits.	Divide numbers up to 4 digits by numbers up to 12 using the formal written method of short division, where appropriate interpret remainders according to the context and use reasoning to find a solution.	Use equivalence to add and subtract proper fractions and mixed numbers with related or unrelated denominators, and spot and test a rule.	Recognise when it is possible to use formulae for area and volume of shapes.			

			Convert improper fractions to mixed numbers; convert mixed numbers to improper fractions.	Calculate the area of parallelograms and triangles.			
			Find non-unit fractions of amounts.	Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units (for example, mm^3 and km^3).			
			Express a remainder after division as a fraction, simplifying where possible.				
			Use knowledge of equivalence between fractions and percentages and mental strategies to solve problems involving the calculation of percentages, including amounts of money and other measures.				
			Solve problems involving the calculation of percentages and the use of percentages for comparison.				
			Multiply fractions less than 1 by whole numbers.				
			Divide proper fractions by whole numbers.				

Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.	Choose and use an appropriate method, including column addition, to add whole numbers with up to 7 digits, and identify patterns in the number of steps required to generate palindromic numbers.	Use appropriate strategies to multiply and divide mentally, including by multiples of 10, 100 and 1000.	Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction.	Solve problems involving the calculation and conversion of units of measure.	Draw 2D shapes using given dimensions and angles.	Interpret and construct pie charts and use these to solve problems.	Use simple formulae.
Round any whole number to a required degree of accuracy.	Choose and use an appropriate method, including counting up, to add and subtract numbers with up to 2 decimal places, including in the context of measures and money and finding change, and use mathematical reasoning to investigate and solve problems.	Perform mental calculations, including with mixed operations and large numbers.	Compare and order numbers with 1, 2 or 3 decimal places.	Convert between miles and kilometres.	Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.	Interpret and construct line graphs and use these to solve problems.	Continue, generate and describe linear number sequences.
Solve number and practical problems involving place value, comparison and rounding of integers.	Choose and use an appropriate method to subtract whole numbers with up to 7 digits.	Multiply multi-digit numbers up to 4 digits by a 1- or 2-digit whole number using the formal written method of long multiplication.	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts, and use mental strategies to solve problems involving simple percentages of amounts.		Compare and classify geometric shapes based on their properties and sizes and use mathematical reasoning to find unknown angles in any triangles, quadrilaterals, and regular polygons.	Read and interpret a range of tables, graphs, pictograms and bar charts and answer questions relating to data displayed in these.	
	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	Multiply pairs of unit fractions by reading the \times sign as 'of'.		Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	Calculate and interpret the mean as an average.	
	Solve problems involving addition, subtraction, multiplication and division.	Solve problems involving addition, subtraction, multiplication and division.	Multiply unit fractions by non-unit fractions, writing the answer in its simplest form.		Describe positions on the full coordinate grid (all four quadrants).		
		Use short multiplication to multiply 4-digit amounts of money by 1-digit numbers, and use	Use mental strategies to multiply 2-digit numbers with one decimal place by 1-digit whole numbers.		Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.		

		estimation to check answers.					
		Use short division to divide 4-digit numbers by 1-digit numbers, including those which leave a remainder; spot patterns, make and test general rules, and check when an answer does not fit the predicted pattern.	Multiply 1- and 2-digit numbers with up to 2 decimal places by whole numbers.				
		Identify common factors, common multiples and prime numbers.	Use written division methods in cases where the answer has up to 2 decimal places.				
		Divide numbers up to 4-digits by a 2-digit whole number using the formal written method of long division, making an estimate using multiples of 10 or 100 of the divisor, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.	Solve problems which require answers to be rounded to specified degrees of accuracy.				
			Solve problems involving simple ratios, i.e. unequal sharing and grouping using knowledge of fractions and multiples.				

Solve number and practical problems that involve place value in large numbers, rounding, comparison and negative numbers.	Consolidate adding and subtracting whole numbers with more than 4 digits, including using column addition and subtraction.	Use appropriate strategies to multiply and divide mentally, including by multiples of 10, 100 and 1000, and solve scaling problems and problems involving rate.	Identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to 3 decimal places; round decimal numbers to the nearest tenth and whole number.	Solve problems using standard units; read scales with accuracy.	Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons; find missing angles at a point, vertically opposite, or on a straight line.	Calculate and interpret the mean as an average.	Express missing number problems algebraically and identify appropriate methods in order to solve them.
Use negative numbers in context, and calculate intervals across zero.	Consolidate adding and subtracting numbers mentally with increasingly larger numbers.	Multiply multi-digit numbers up to 4 digits by a 2-digit whole number using the formal written method of long multiplication and solve problems involving multiplication of money and measures.	Add several decimal numbers using mental or written addition.	Consolidate using 12 and 24-hour clocks; use counting up to calculate time intervals and count on and back in hours and minutes, bridging the hour, to find start and finish times; use timetables.	Consolidate classifying angles as acute, right, obtuse or reflex.	Read, interpret and construct tables, bar charts, pictograms, pie charts and line graphs and use these to solve problems.	Solve mathematical puzzles and justify their reasoning; spot patterns and make and test predictions.
Round any whole number to a required degree of accuracy.	Solve addition and subtraction multi-step problems in contexts, including money, deciding which operations and methods to use and why.	Multiply 2-, 3-, and 4-digit numbers by numbers up to 12 using short multiplication or another appropriate formal written method and solve word problems involving multiplication of money and measures.	Subtract decimal numbers using mental or written counting up or other mental strategies.	Measure areas and perimeters; understand that area is a measurement of covering and is measured in square units and that perimeter is a length measured in mm, cm, m or km, for example; recognise that shapes with the same areas can have different perimeters and vice versa.	Find pairs of numbers that satisfy an equation with two unknowns and list in order the possibilities of combinations of two variables.		
Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.	Solve problems involving addition, subtraction, multiplication and division.	Solve problems involving addition, subtraction, multiplication and division.	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.	Calculate the area of rectangles, parallelograms and triangles.	Identify, illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.		

	Use knowledge of the order of operations, including using brackets, to carry out calculations involving the four operations.	Use knowledge of the order of operations, including using brackets, to carry out calculations involving the four operations.	Use knowledge of equivalence to compare and order fractions.	Calculate, estimate and compare volumes of cubes and cuboids.	Identify coordinates on the full coordinate grid; find missing coordinates for a vertex on a polygon or line.		
	Perform mental calculations, including with mixed operations and large numbers, and use inverse operations to solve missing number problems.	Perform mental calculations, including with mixed operations and large numbers, and use inverse operations to solve missing number problems.	Add and subtract fractions, with different denominators and mixed numbers, using the concept of equivalent fractions.				
		Divide numbers up to 4-digits by a 2-digit whole number using the formal written method of long division, making approximations, and interpret remainders as whole number remainders, fractions (simplifying where possible) or writing the fractional part of the answer as a decimal where the equivalent is known) or by rounding as appropriate for the context.	Solve problems involving the calculation of percentages and the use of percentages for comparison.				
		Know all multiplication and division facts up to 12×12 ; identify common factors, common multiples and prime numbers.	Divide proper fractions by whole numbers.				
		Use a systematic approach to solve problems involving multiplication and division.	Multiply simple pairs of proper fractions writing the answer in its simplest form; understand that if two numbers less than 1 are multiplied, the answer is smaller than either.				

Divide numbers up to 4-digits by a 2-digit number using the formal written method of short division where appropriate, estimating answers and interpreting remainders according to the context, including money problems that require answers to be rounded.

Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.

Associate a fraction with division to find an unknown number using inverse operations.

Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Multiply decimals by whole numbers by multiplying by $\frac{10}{100}$ to make whole number calculations then dividing by $\frac{10}{100}$ to find the answer.

Solve problems involving similar shapes where the scale factor is known or can be found.