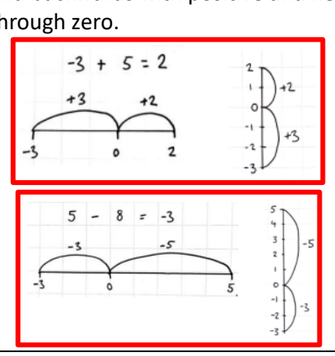
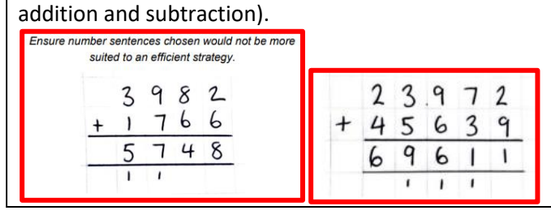
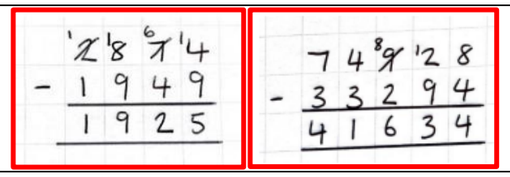
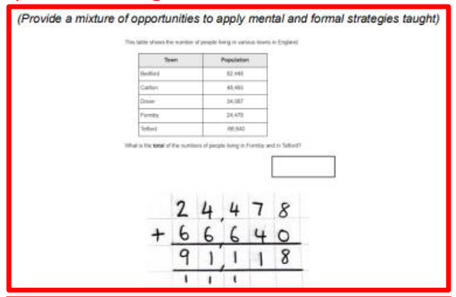
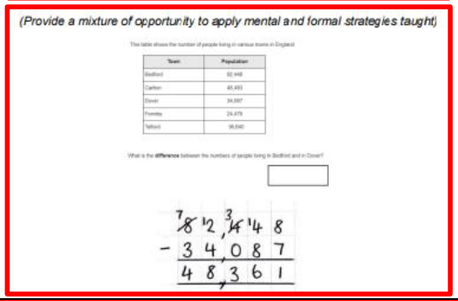
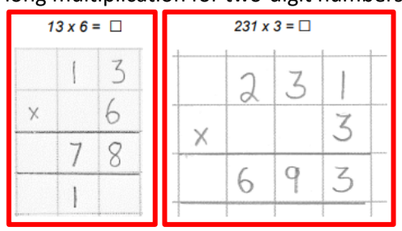
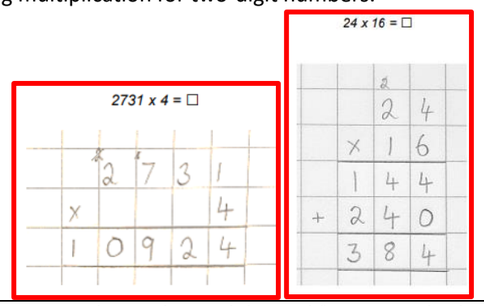
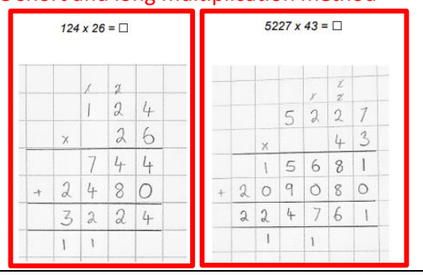
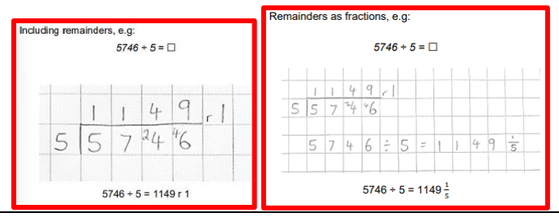
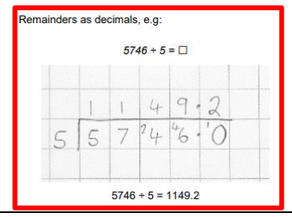
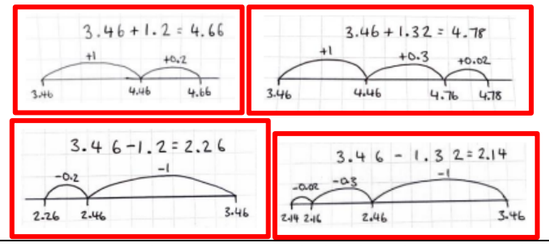
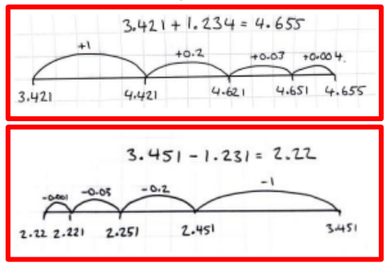
Year 5 Maths Milestones

Milestone 1	Milestone 2	Milestone 3	End of year
Number: Number and place value			
Key Number Facts: Associated facts 10,000 = 9500 = 500 10,000 = 5000 + 5000 10,000 = 2500 + 2500 + 2500 + 2500 10,000 ÷ 2 = 5000 10,000 ÷ 4 = 2500 10,000 ÷ 5 = 2000 10,000 ÷ 10 = 1000 10,000 ÷ 100 = 100			
5.1 Y4: Identify, represent and estimate numbers using different representations. 5.1 Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit. Recognise the place value of digits in a four- and five-digit number Position and compare numbers on a number line			
Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000			
	5.8 Interpret negative numbers in context, count forwards and backwards with positive and negative numbers through zero.  		
5.1 Round any number up to 1,000,000 to the nearest 10,100,1000, 10,000 and 100,000			
5.1 Solve number problems and practical problems that involve all of the above.	5.5 solve number problems and practical problems that involve all of the above		
Read Roman numerals to 1000 (M) and recognise years written in Roman numerals			
Number: Addition and subtraction			
5.1 Add and subtract whole numbers with more than 4 digits, including formal written methods (columnar addition and subtraction). 	5.7 Add and subtract whole numbers with more than 4 digits including using formal written methods (columnar addition and subtraction).	5.10 Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	5.15 Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtract). Solve problems using an efficient method. Solve missing number problems written in the columnar method

			
5.1 Y2: Recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 100. 5.1 Add and subtract numbers mentally with increasingly larger numbers. Key facts about 1000 and 10000 including ½, ¼, 2/4, ¾ and 1/10 Use a range of mental strategies and know when a mental strategy is most efficient	5.7 Add and subtract mentally with increasingly large numbers e.g. 12,462 – 2300 = 10,612. Use a wider range of mental strategies for addition and subtraction including: partitioning numbers, rounding and adjusting, application of known facts such as number bonds	5.10 Add and subtract mentally with increasingly large numbers. Add and subtract deciding which operations and methods to use and why, including the following mental strategies: rounding and adjusting; compensating numbers; doubles and near doubles; applications of number bonds to solve calculations.	5.15 Add and subtract mentally with increasingly large numbers. Solve problems using an efficient method.
5.1 Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.	5.7 Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.	5.10/5.14 Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.	5.15 Use rounding to check answers and determine, in the context of a problem, levels of accuracy.
5.1 Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	5.5/5.7 Solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why. Choose efficient methods and reason why that method is more efficient	5.10/5.14 Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Decide which operation and method to use and why.	5.15 Solve addition and subtraction multi-step problems in contexts deciding which operations to use and why. Solve problems using an efficient method.  
Number: Multiplication and division			
Key Number Facts: Derive new facts from known facts: For example: 12 x 5 = 60 60 ÷ 5 = 12 5.2x 5 = 6.0 6 ÷ 5 = 1.2 5 x 7 = 35 5 x 0.7 = 3.5 5 x 0.07 = 0.35 Square numbers: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144 Prime numbers: 2, 3, 5, 7, 11, 13, 17, 19			
5.2 Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers.	5.5 Identify factors and multiples, including finding all factor pairs of a number, and common factors of two numbers.	5.12 Identify multiples and factors, including all factor pairs of a number and common factors of two numbers.	5.17 Identify multiples and factors, including finding all factors pairs, prime factors and composite (non-prime) numbers.

Understand that factors can be written in either order but the product remains the same. Use arrays to find multiples and factors of given numbers. Find common factors of two numbers.	Use the vocabulary of factor, multiple and prime Solve problems using knowledge of factors and multiples	Find common factors Calculate square and cube numbers	
5.2 Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.	5.5 Know and use the vocabulary of prime numbers, common prime factors and composite (non-prime) numbers.	5.12 Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. Reason why a number is/isn't a prime number using arrays to support	
5.2 Establish whether a number up to 100 is prime and recall prime numbers up to 19. Identify prime numbers using arrays			5.17 Establish whether a number is prime up to 100 and recall prime numbers up to 19.
	5.5 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. 	5.11 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. 	5.17 Multiply numbers up to 4-digits by a one-or two-digit number using a formal written method, including long multiplications for two-digit numbers. Use the short and long multiplication method 
5.2 Multiply and divide numbers mentally drawing upon known facts. Divide by sharing and grouping Know the difference between sharing and grouping Use known facts to estimate the answers to divisions	5.5 Multiply and divide numbers mentally, drawing upon known facts.	5.9 Y4: Use place value and derived facts to multiply and divide mentally, including multiplying by 0 and 1; dividing by 1; multiplying together three numbers. 5.11 Multiply and divide numbers mentally drawing upon known facts.	5.17 Multiply and divide numbers mentally drawing upon known facts.
		5.11 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. 	5.17 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. 
5.2 Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. Use place value charts to support multiplying and dividing by 10 or 100 Use the inverse to solve missing number problems		5.11 Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. Divide whole numbers by 10, 100, 1000. Divide decimal numbers by 10 Use facts and related facts to solve problems such as 0.25x20; 3.4÷100; 30x1.4	5.17 Multiply and divide whole numbers and those involving decimals by 10, 100, 1000.
		5.12 Recognise and use square numbers and cube numbers and the notation for (2) and (3).	5.17 Recognise and use square number and cube numbers, with the correct notation (2) and (3)
	5.5 Solve problems involving addition, subtraction, multiplication and division, including using their knowledge of factors and multiples, squares and cubes.	5.11 Solve problems involving multiplication and division, including using their knowledge of factors and multiples, ~~squares and cubes.~~	5.17 Solve problems involving addition, subtraction, multiplication and division including using their knowledge of factors and multiples, squares and cubes.

		Solve problems in a range of contexts; pupils know what to do with remainders in different contexts. 5.12 Solve problems involving multiplication and division and a combination of these, including using their knowledge of factors and multiples, squares and cubes.	Solve problems efficiently, choosing a mental or formal method as appropriate.
	5.5 solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign Solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why Use the bar model to show relationships between addition and subtraction	5.12/5.14 solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign Decide which operation and method to use and why.	
		5.11 Solve problems involving multiplication and division, including scaling by simple fractions ~~and problems involving simple rates.~~	5.17 Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. Solve problems involving measure including scaling.
Number: Fractions (including decimals and percentages)			
Key Number Facts: $1 \div 100 = \frac{1}{100} = 0.01$ $2 \div 100 = \frac{2}{100} = 0.02$ $3 \div 100 = \frac{3}{100} = 0.03$ $4 \div 100 = \frac{4}{100} = 0.04$ $5 \div 100 = \frac{5}{100} = 0.05$ $6 \div 100 = \frac{6}{100} = 0.06$ $7 \div 100 = \frac{7}{100} = 0.07$ $8 \div 100 = \frac{8}{100} = 0.08$ $9 \div 100 = \frac{9}{100} = 0.09$ $10 \div 100 = \frac{10}{100} = \frac{1}{10} = 0.1$		$10\% = 0.1 = \frac{1}{10} = \frac{10}{100} = \frac{100}{1000}$ $50\% = 0.5 = \frac{1}{2} = \frac{5}{10} = \frac{50}{100}$ $25\% = 0.25 = \frac{1}{4} = \frac{25}{100}$ $75\% = 0.75 = \frac{3}{4} = \frac{75}{100}$ $20\% = 0.2 = \frac{1}{5} = \frac{2}{10} = \frac{20}{100}$ $40\% = 0.4 = \frac{2}{5} = \frac{4}{10} = \frac{40}{100}$	
5.3 Compare and order fractions whose denominators are all multiples of the same number. Solve problems where fractions need to be converted to the same denominator, using bar models and number lines, and compared			5.16 Compare and order fractions whose denominators are all multiples of the same number. (including mixed numbers)
5.3 Identify, name, and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Represent families of common equivalent fractions using number lines, bar models and fraction walls 5.4 Identify, name, and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Use fraction walls to find equivalent fractions Recall tenths and hundredths equivalence Reason using equivalent fractions ('would you rather…')	5.6 Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Compare fractions – tenths and hundredths		5.16 Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.
5.3 Recognise mixed numbers and improper fractions, and convert from one form to another and write mathematical statements > 1 as a mixed number. Understand mixed numbers and improper fractions			5.16 Recognise mixed numbers and improper fractions and convert from one form to the other. Write mathematical statements >1 as a mixed number.

5.4 Recognise mixed numbers and improper fractions, and convert from one form to another and write mathematical statements > 1 as a mixed number. Convert between mixed and improper fractions using number lines to support			
5.3/5.4 Add and subtract fractions with the same denominator and multiples of the same number. (unit fractions)	5.7 Add and subtract fractions with the same denominator beyond one and multiples of the same number. (including mixed numbers and improper fractions)	5.10 Add and subtract fractions with the same denominator and denominators that are multiples of the same number. (including mixed numbers and improper fractions)	5.16 Add and subtract fractions with the same denominator and multiples of the same number.
		5.9 Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.	5.16 Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.
	5.6 Read and write decimal numbers as fractions (e.g. 0.71 = 71/100).		5.18 Read and write decimal numbers as fractions (e.g. 0.71 = 71/100).
	5.6 Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. Recognise and use tenths and hundredths Recognise and use thousandths		
	5.5/5.6 Round decimals with two decimal places to the nearest whole number and to one decimal place		5.18 Round decimals with two decimal places to one decimal place and to the nearest whole number.
		5.9 Read, write, order and compare numbers with up to three decimal places. Compare and order fraction, decimal and percentage equivalents	5.18 Read, write, order and compare numbers with up to three decimal places.
	5.7 Solve problems involving number up to three decimal places. Solve measure problems involving fractions and decimals 	5.9/5.10 Solve problems involving number up to three decimal places. (in the context of measure) 	
	5.6 Recognise the percent symbol (%) and understand that percent relates to the number of parts per hundred, write percentages as a fraction with the denominator hundred and as a decimal fraction. Understand how percent relates to the number of parts per 100 Understand how percent links to fractions over 100 (hundredths) Convert between fraction (hundredths), decimal and percentage equivalents		5.16 Recognise the per cent symbol (%) and understand that it relates to the 'number of parts per 100', and write percentages as a fraction with the denominator hundred, and as a decimal fraction. Find a percentage of a number efficiently
	5.6 Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those with the denominator of digit 10 or 25.	5.9 Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those with the denominator of digit 10 or 25.	5.16 Solve problems which require knowing percentage and decimal equivalents. Recognise percentage and decimal equivalents Solve problems using percentage and decimal equivalents
Measurement			
Key Number Facts:			

	1mm = $\frac{1}{10}$ cm 1mm = $\frac{1}{1000}$ m 1 kg ≈ 2.2 lbs 1 L ≈ 1.76 pints 1m ≈ 39.4 inches 1cm ≈ 2.54 inches ≈ means 'approximately equal to'		
	5.5 Convert between different units of metric measure (e.g. grams/kilograms; millilitres/litres) Be familiar with different weights and capacities e.g. a 500g or 1kg bag of sugar, a 1l or 750ml drinks bottle, and use to improve the reasonableness of estimating Convert between different units of metric measure – mass (g/kg), capacity (l/ml) Read scales to measure in grams/kilograms and millilitres/litres		5.18 Convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).
	5.5 Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.	5.9 Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. Convert between pints and litres	5.18 Understand and use equivalences between metric units and common imperial units such as inches, pounds, pints.
5.1 Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. Find perimeters of different shapes and problem contexts Use mental and written methods to solve problems			5.18 Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. Calculate perimeter of a range of rectangles
5.2 Calculate and compare the area of rectangles, including squares, and including using standard units square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes. Estimate the area of regular and irregular shapes Find the area of irregular shapes by splitting into rectangular shapes			5.18 Calculate and compare the area of rectangles (including square) and including standard units square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes. Calculate area of a range of rectangles
		5.9 Estimate volume (e.g. using 1cm3 blocks to build cuboids (including cubes)) and capacity (e.g. using water). Begin to understand the concept of volume Estimate volume of cubes/cuboids	5.18 Estimate volume (e.g. using 1cm3 blocks to build cubes and cuboids) and capacity (e.g. using water).
5.4 Solve problems involving converting between units of time Recall key facts of time: 48 hours = 2 days, 120 minutes = 2 hours, 90 minutes = 1.5 hours Solve problems involving time durations Solve problems using key facts			5.18 Solve problems involving converting between units of time
5.1 Use all four operations to solve problems involving measure (e.g. length, mass, volume, money), using decimal notation. Solve multi-step problems involving addition and subtraction in the context of length. Estimate answers prior to calculating Show solutions using a range of representations Check for reasonableness of answers	5.5 Use all four operations to solve problems involving measure (mass and capacity) using decimal notation including scaling. Solve problems in the context of mass and capacity, estimating an answer first and considering the reasonableness of the answer 5.7 Use all four operations to solve problems involving measure. Solve measure problems involving fractions and decimals	5.9/5.10 Use all four operations to solve problems involving measure, using decimal notations, including scaling. Solve problems in the context of scales and capacity	5.18 Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.

Geometry: properties of shapes			
Key Number Facts: 360 ÷ 4 = 90 $\frac{1}{4}$ of 360 = 90 360 ÷ 2 = 180 $\frac{1}{2}$ of 360 = 180 $\frac{3}{4}$ of 360 = 270 complements such as 70 + 110 = 180 95 + 85 = 180 multiples: 90 , 180 , 270 , 360 , 450 , 540			
5.4 Y4: Compare and classify geometric shapes, including quadrilaterals and triangles based on their properties and size. 5.4 Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. Identify properties of geometric shapes including: lines of symmetry, lengths of sides, sizes of angles, faces Know that shapes can have multiple classifications Know that regular shapes have all sides the same length and angles the same size Compare and classify geometric shapes based on their own criteria		5.9 Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. Match 3D shapes to their nets Make 3D shapes from nets	
5.4 Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.	5.6 Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. Recognise angles as acute, obtuse, right angles, straight lines and reflex angles. Estimate the number of degrees in an angle.		5.16 Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.
	5.6 Draw given angles and measure them in degrees (°). Use a protractor to measure angles accurately		5.16 Draw given angles and measure them in degrees (o). Measure given angles accurately
5.4 Identify: o angles at a point and one whole turn (360°) o angles at a point on a straight line and half a turn (180°) o other multiples of 90°			5.16 Identify: o angles at a point and one whole turn (360o) o angles at a point on a straight line and half a turn (180o) o other multiples of 90o Find missing angles using key facts
	5.6 Use the properties of rectangles to deduce related facts and find missing lengths and angles. Know that angles in a quadrilateral equal 360° Find missing angles in a quadrilateral		5.16 Use the properties of rectangles to deduce related facts and find missing lengths and angles.
		5.13 Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	
Geometry: position and direction			
5.4 Identify, describe and represent the position of a shape following a reflection or a translation, using the appropriate language and know that the shape has not changed.		5.13 Y4: Describe positions on a 2-D grid as coordinates in the first quadrant. Plot points on a coordinate grid in the first quadrant 5.13 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.	
Statistics			
	5.8 Solve comparison, sum and difference problems using information presented in a line graph. Read and interpret information in a line graph		5.15 Solve comparison, sum and difference problems using information presented in a line graph.

5.4 Complete, read and interpret information in tables, including timetables. Read and interpret information in timetables	5.8 Complete, read and interpret information in tables. Read and interpret information given in a table		5.15/5.18 Complete, read and interpret information in tables, including timetables.