

Year 6	Number and place value	Addition and Subtraction (including algebra)	Multiplication and Division (including algebra, ratio and proportion)	Fractions (including decimals)	Measurement	Geometry	
						Properties of shape	Position and direction
Milestone 1 inc Year 5	- read, write, order and compare numbers up to 10,000,000 and determine the value of each digit - round any whole number to a required degree of accuracy	- perform mental calculations, including with mixed operations and large numbers - solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why - solve problems involving addition, subtraction, multiplication and division - use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy - Algebra: use simple formulae	- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication - divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context - perform mental calculations, including with mixed operations and large numbers. - solve problems involving addition, subtraction, multiplication and division - use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. Algebra: use simple formulae Algebra: generate and describe linear number sequences (Ratio and proportion) - RP: solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts - RP: solve problems involving the calculation of percentages (e.g. of measures) such as 15% of 360 and the use of percentages for comparison (Statistics) - Statistics: calculate and interpret the mean as an average	- use common factors to simplify fractions; use common multiples to express fractions in the same denomination - compare and order fractions, including fractions >1 - add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions - multiply simple pairs of proper fractions, writing the answer in its simplest form¹ (e.g. $\frac{7}{4} \times \frac{1}{2} = \frac{7}{8}$) - associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$) - identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places - multiply one-digit numbers with up to two decimal places by whole numbers - solve problems which require answers to be rounded to specified degrees of accuracy - recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	- 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 to up to three decimal places - recognise that shapes with the same areas can have different perimeters and vice versa - recognise when it is possible to use formulae for area and volume of shapes	- draw 2-D shapes using given dimensions and angles - compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons - illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius - recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	describe positions on the full coordinate grid (all four quadrants)

	Milestone 2		- uses negative numbers in context, and calculate intervals across zero - solve number and practical problems that involve all of the above.	- use their knowledge of the order of operations to carry out calculations involving the four operations - Algebra: express missing number problems algebraically - Algebra: find pairs of numbers that satisfy number sentences involving two unknowns	- use their knowledge of the order of operations to carry out calculations involving the four operations - identify common factors, common multiples and prime numbers - express missing number problems algebraically - Algebra: find pairs of numbers that satisfy number sentences involving two unknowns - Algebra: enumerate all possibilities of combinations of two variables. (Ratio and proportion) RP:solve problems involving ratio and proportion RP:solve problems involving similar shapes where the scale factor is known or can be found RP:solve problems involving unequal sharing and grouping using knowledge of fractions and multiples (Statistics) - Statistics: interpret and construct pie charts and line graphs and use these to solve problems	- divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$) - use written division methods in cases where the answer has up to two decimal places	- convert between miles and kilometres - calculate the area of parallelograms and triangles - calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3.	recognise, describe and build simple 3-D shapes, including making nets	draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
	Milestone 3		- solve number and practical problems that involve all of the above. 6NPV–1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000). 6NPV–2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning. 6NPV–3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.	solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Algebra: use simple formulae Algebra: find pairs of numbers that satisfy an equation with two unknowns. 6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.	solve problems involving addition, subtraction, multiplication and division (Ratio and proportion) RP:solve problems involving ratio and proportion RP:solve problems involving similar shapes where the scale factor is known or can be found RP:solve problems involving unequal sharing and grouping using knowledge of fractions and multiples 6AS/MD–1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). 6AS/MD–3 Solve problems involving ratio relationships 6AS/MD–4 Solve problems with 2 unknowns.	- recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. - solve problems which require answers to be rounded to specified degrees of accuracy 6F–1 Recognise when fractions can be simplified, and use common factors to simplify fractions. 6F–2 Express fractions in a common denomination and use this to compare fractions that are similar in value. 6F–3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy.	solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate	compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. 6G–1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems	

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