



Year 5 Mathematics Progressive Programme of study

Number **Measure** **Geometry** **Statistics** *Ready To Progress Criteria*

Year 5 Autumn	<u>Number: Place Value</u> • read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • 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. • Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01. • Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100)	<u>Number: Addition and subtraction</u> • add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • add and subtract numbers mentally with increasingly large numbers • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. • Practise mental calculations with increasingly large numbers to aid fluency (for example, $12\,462 - 2300 = 10\,162$).		<u>Measurement: Length and perimeter</u> • measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	<u>Number: Multiplication and Division</u> • 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 prime numbers up to 19 • multiply and divide numbers mentally drawing upon known facts • recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) • solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	Consolidation & Assessment
Year 5 Spring	<u>Number: Multiplication and Division</u> •multiply and divide numbers mentally drawing upon known facts. •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 •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 •multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 •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.	<u>Number: Addition, subtraction, Multiplication and Division</u> • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	<u>Measurement: Area</u> • 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	<u>Number: Fractions</u> • compare and order fractions whose denominators are all multiples of the same number • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • 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, $2/5 + 4/5 = 6/5 = 1\,1/5$] • 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	<u>Number: Decimals and percentages</u> • read, write, order and compare numbers with up to three decimal places • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • read and write decimal numbers as fractions [for example, $0.71 = 71/100$] • round decimals with two decimal places to the nearest whole number and to one decimal place • recognise the per cent symbol (%) and understand that per cent relates to ‘number of parts per hundred’ • write percentages as a fraction with denominator 100, and as a decimal • solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $1/10$, $1/5$, $2/5$, $4/5$ and those fractions with a denominator of a multiple of 10 or 25.	Consolidation & Assessment



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Year 5 Summ er	<u>Number: Decimals and Percentages</u>	<u>Measurement: Converting Units and Time</u>	<u>Measurement: Volume</u>	<u>Statistics</u>	<u>Geometry: Properties of Shape</u>	<u>Geometry: Position and direction</u>	Consolidation & Assessment
	- solve problems involving number up to three decimal places (adding and subtracting decimals within 1; adding decimals – crossing the whole; adding and subtracting decimals with different number of decimal points, decimal sequences) - multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	- convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; millimetre; gram and kilogram; litre and millilitre) - understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints - solve problems involving converting between units of time - use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water]	- solve comparison, sum and difference problems using information presented in a line graph - complete, read and interpret information in tables, including timetables.	- identify 3-D shapes, including cubes and other cuboids, from 2-D representations - know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles - draw given angles, and measure them in degrees identifying - angles at a point and one whole turn (total 360 degrees) - angles at a point on a straight line a turn (total 180 degrees) - other multiples of 90 degrees - use the properties of rectangles to deduce related facts and find missing lengths and angles - distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	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.	
	<u>Measurement with decimals</u> use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.						