

National Curriculum Objectives

YEAR 5

Number - number and place value

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 and They should recognise and describe linear number sequences, including those involving fractions and decimals, and find the term-to-term rule.	
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

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	
Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	

Number - multiplication and division

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 (nonprime) numbers	
Establish whether a number up to 100 is prime and recall prime numbers up to 19	
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	
Multiply and divide numbers mentally drawing upon known facts	
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	
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	
Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign to indicate equivalence, including in missing number problems (for example, $13 + 24 = 12 + 25$; $33 = 5 \times \underline{\quad}$)	
Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	

Number - fractions

Compare and order fractions whose denominators are all multiples of the same number	
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 a denominator of a multiple of 10 or 25	
Notes and guidance (non-statutory) Pupils should be taught throughout that percentages, decimals and fractions are different ways of expressing proportions.	
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, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$]	
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	
Read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$]	
Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	
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 and connect to decimals and measures. and are confident in checking the reasonableness of their answers to problems	
Solve problems involving number up to three 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	

Measurement

Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and 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	
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 (cm ²) and square metres (m ²) and estimate the area of irregular shapes	

Estimate volume [for example, using 1 cm ³ blocks to build cuboids (including cubes)] and capacity [for example, using water]	
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	
Geometry - properties of shapes	
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	
Draw given angles, and measure them in degrees (°)	
Pupils become accurate in drawing lines with a ruler to the nearest millimetre	
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 ½ a turn (total 180°) • other multiples of 90° 	
Pupils use angle sum facts and other properties to make deductions about missing angles and relate these to missing number problems	
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	
Pupils use the term diagonal and make conjectures about the angles formed between sides, and between diagonals and parallel sides, and other properties of quadrilaterals, for example using dynamic geometry ICT tools. They use conventional markings for parallel lines and right angles	
Geometry – Position and direction	
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	
Solve comparison, sum and difference problems using information presented in a line graph	
Complete, read and interpret information in tables, including timetables. They begin to decide which representations of data are most appropriate and why	