Year 5 expectations

	Number and place value	Addition and subtraction	Multiplication and division	Fractions
Year 5 pupils should be taught to:	• 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 recognize years written in Roman numerals	• add and subtract whole numbers with more than four 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	• 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 numbers up to four 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 four 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	• 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 [e.g. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$] • 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 [e.g. $0.71 = \frac{71}{100}$] • 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
		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 • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	• read, write, order and compare numbers with up to three decimal places • solve problems involving numbers 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 • 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
	Measurement	**Geometry – properties of shapes**	**Geometry – position and direction**	**Statistics**
Year 5 pupils should be taught to:	• convert between different units of metric measure [e.g. 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	• 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 (°)	• 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	• solve comparison, sum and difference problems using information presented in a line graph • complete, read and interpret information in tables, including timetables

	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 (m2) and estimate the area of irregular shapes
	• estimate volume [e.g. using 1 cm3 blocks to build cuboids (including cubes)] and capacity [e.g. using water]
	• solve problems involving converting between units of time
	• use all four operations to solve problems involving measure [e.g. length, mass, volume, money] using decimal notation, including scaling
		• identify:
		  • angles at a point and one whole turn (total 360°)
		  • angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°)
		  • other multiples of 90°
		  • 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		