

# Numeracy Expectations Year 5

Counting	Place Value	Comparing and ordering	Rounding, approximation and estimation	Multiplying by powers of 10	Negative numbers
<p>Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</p> <p>Count forwards and backwards in decimal steps</p>	<p>Read and write numbers to at least 1 000 000</p> <p>Read and write numbers with up to three decimal places.</p> <p>Determine the value of each digit in numbers to at least 1 000 000</p>	<p>Order and compare numbers to at least 1 000 000</p> <p>Order and compare numbers with up to three decimal places</p> <p>Find 0.01, 0.1, 1, 10, 100, 1000 and other powers of 10 more or less than a given number</p>	<p>Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000</p> <p>Round decimals with two decimal places to the nearest whole number and to one decimal place</p>	<p>Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</p>	<p>Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero</p>

Sequences and patterns	Roman Numerals	Solving Number Problems	Understanding addition and subtraction	Addition and subtraction facts	Estimating and checking
<p>Describe and extend number sequences including those with multiplication and division steps and those where the step size is a decimal</p>	<p>Read Roman numerals to 1000 (M) and recognise years written in Roman numerals</p>	<p>Solve number problems and practical problems that involve all of the above</p>	<p>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)</p>	<p>Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)</p> <p>Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)</p>	<p>Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</p>

			<b>Addition and Subtraction (Mental)</b> Add and subtract numbers mentally with increasingly large numbers and decimals to 2 decimal places.	<b>Addition and Subtraction (written)</b> Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	
--	--	--	-------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

Solving addition and subtraction problems including those with missing numbers	Understanding multiplication and division	Multiplication and division facts	Mental Methods	Written Methods	Estimating and checking calculations
Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Solve addition and subtraction problems involving missing numbers	Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known or related fact, calculate mentally, use a jotting, written method)  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 Recognise and use square numbers and cube numbers, and the notation for squared ( $^2$ ) and cubed ( $^3$ ) Use partitioning to double or halve any number, including decimals to two decimal places	Multiply and divide numbers mentally drawing upon known facts Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	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	Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy

Solving multiplication and division problems including those with missing numbers	Fractions of objects, shapes and quantities	Counting, comparing and ordering fractions	Equivalence	Calculating with Fractions	Percentages
<p>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</p> <p>Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</p>	<p>Recognise mixed numbers and improper fractions and convert from one form to the other</p> <p>Read and write decimal numbers as fractions (e.g. <math>0.71 = \frac{71}{100}</math>)</p>	<p>Count on and back in mixed number steps such as <math>1\frac{1}{2}</math></p> <p>Compare and order fractions whose denominators are all multiples of the same number (including on a number line)</p>	<p>Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</p> <p>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</p>	<p>Add and subtract fractions with the same denominator and denominators that are multiples of the same number (using diagrams)</p> <p>Write mathematical statements <math>&gt;1</math> as a mixed number (e.g. <math>\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}</math>)</p> <p>Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</p>	<p>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</p>

Solving problems involving fractions, decimals and percentages	Length / height	Perimeter	Area	Mass	Capacity / volume
<p>Solve problems involving fractions</p> <p>Solve problems involving number up to three decimal places</p> <p>Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \frac{4}{5}</math> and those with a denominator of a multiple of 10 or 25</p>	<p>Use, read and write standard units of length to a suitable degree of accuracy</p> <p>Understand and use approximate equivalences between metric and common imperial units such as inches</p>	<p>Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p>	<p>Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes</p>	<p>Use, read and write standard units of mass to a suitable degree of accuracy</p> <p>Understand and use approximate equivalences between metric and common imperial units such as pounds</p>	<p>Estimate (and calculate) volume (for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)) and capacity (for example, using water)</p> <p>Understand the difference between liquid volume, including capacity and solid volume</p> <p>Understand and use approximate equivalences between metric and common imperial units such as pints</p>

Temperature	Conversion	Time	Solving problems involving money and measures	Properties of shape	Angles and rotation
Continue to order temperatures including those below 0°C	Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)	Convert between units of time in a problem solving context  Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks	Use all four operations to solve problems involving measure (for example, length, mass, volume, money) using decimal notation including scaling  Solve problems involving converting between units of time	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles  Use the properties of rectangles to deduce related facts and find missing lengths and angles  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: - 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°

Coordinates	Sorting and classifying	Present and interpret data	Solve problems using data	Averages	Coordinates (including reflection and translation)
Describe positions on the first quadrant of a coordinate grid  Plot specified points and complete shapes	Complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes)	Complete, read and interpret information in tables, including timetables	Solve comparison, sum and difference problems using information presented in all types of graph including a line graph	Calculate and interpret the mode, median and range	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