

Numeracy Expectations Year 6

Counting	Place Value	Comparing and Ordering	Rounding, approximation and estimation	Multiplying by powers of 10	Negative Numbers
Count forwards or backwards in steps of integers, decimals or powers of 10 for any number	<p>Read and write numbers up to 10 000 000</p> <p>Determine the value of each digit in numbers up to 10 000 000</p> <p>Identify the value of each digit to three decimal places</p> <p>Identify, represent and estimate numbers using the number line</p>	<p>Order and compare numbers up to 10 000 000</p> <p>Order and compare numbers including integers, decimals and negative numbers</p> <p>Find 0.001, 0.01, 0.1, 1, 10 and powers of 10 more or less than a given number</p>	<p>Round any whole number to a required degree of accuracy</p> <p>Round decimals with three decimal places to the nearest whole number or one or two decimal places</p>	Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places	Use negative numbers in context, and calculate intervals across zero

Sequences and patterns	Solving Number Problems	Understanding + and -	+ and - facts	Mental Methods	Written methods
Describe and extend number sequences including those with multiplication and division steps, inconsistent steps, alternating steps and those where the step size is a decimal	Solve number and practical problems that involve all of the above	Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)	Recall and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)	<p>Select a mental strategy appropriate for the numbers involved in the calculation</p> <p>Perform mental calculations, including with mixed operations and large numbers and decimals</p>	Add and subtract whole numbers and decimals using formal written methods (columnar addition and subtraction)

Estimating and checking calculations	Order of operations	Solving + and - problems including those with missing numbers	Understanding multiplication and division	Multiplication and division facts	Mental methods
Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy	Use their knowledge of the order of operations to carry out calculations involving the four operations	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, including those with 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 common factors, common multiples and prime numbers Use partitioning to double or halve any number	Perform mental calculations, including with mixed operations and large numbers
Present and interpret data	Solve problems using data	Averages			
Interpret and construct pie charts and line graphs and use these to solve problems	Solve comparison, sum and difference problems using information presented in all types of graph	Calculate and interpret the mean as an average			

Written methods	Estimating and checking calculations	Order of operations	Solving multiplication and division problems	Counting, comparing and ordering fractions	Equivalence
<p>Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</p> <p>Multiply one-digit numbers with up to two decimal places by whole numbers</p> <p>Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context</p> <p>Use written division methods in cases where the answer has up to two decimal places</p>	<p>Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</p>	<p>Use their knowledge of the order of operations to carry out calculations involving the four operations</p>	<p>Solve problems involving addition, subtraction, multiplication and division</p>	<p>Compare and order fractions, including fractions >1 (including on a number line)</p>	<p>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination</p> <p>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</p> <p>Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$)</p>

Calculating with fractions	Percentages	Solving problems involving fractions, decimals and %	Ratio and proportion	Algebra	Length / height
<p>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</p> <p>Multiply simple pairs of proper fractions, writing the answer in its simplest form (using diagrams) (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$)</p> <p>Divide proper fractions by whole numbers (using diagrams) (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$)</p>	<p>Find simple percentages of amounts</p>	<p>Solve problems involving fractions</p> <p>Solve problems which require answers to be rounded to specified degrees of accuracy</p> <p>Solve problems involving the calculation of percentages (for example, of measures, and such as 15% of 360) and the use of percentages for comparison</p>	<p>Solve problems involving the relative sizes of two quantities where missing values can be found using integer multiplication and division facts</p> <p>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples</p> <p>Solve problems involving similar shapes where the scale factor is known or can be found</p>	<p>Express missing number problems algebraically</p> <p>Use simple formulae</p> <p>Generate and describe linear number sequences</p> <p>Find pairs of numbers that satisfy an equation with two unknowns</p> <p>Enumerate possibilities of combinations of two variables</p>	<p>Use, read and write standard units of length using decimal notation to three decimal places</p>

Perimeter	Area	Mass	Capacity / volume	Temperature	Conversion
Recognise that shapes with the same areas can have different perimeters and vice versa	Calculate the area of parallelograms and triangles Recognise when it is possible to use the formulae for area and volume of shapes	Use, read and write standard units of mass using decimal notation to three decimal places	Use, read and write standard units of volume using decimal notation to three decimal places Calculate and estimate volume of cubes and cuboids using standard units, including cubic centimetres (cm ³) and cubic metres (m ³) and extending to other units (for example, mm ³ and km ³) Compare volume of cubes and cuboids using standard units, including cubic centimetres (cm ³) and cubic metres (m ³) and extending to other units (for example, mm ³ and km ³)	Calculate differences in temperature, including those that involve a positive and negative temperature	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 three decimal places Convert between miles and kilometres

Time	Solving problems involving money	Properties of shape	Angles and rotation	Coordinates	Sorting and classifying
Use, read and write standard units of time	Solve problems involving the calculation and conversion of units of measure (including money and time), using decimal notation up to three decimal places where appropriate	Compare and classify geometric shapes based on their properties and sizes Draw 2-D shapes using given dimensions and angles Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius Recognise, describe and build simple 3-D shapes, including making nets	Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles Find unknown angles in any triangles, quadrilaterals, and regular polygons	Describe positions on the full coordinate grid (all four quadrants) Draw and translate simple shapes on the coordinate plane, and reflect them in the axes	Continue to complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes)