

## Key indicators for level 5 in Years 7 and 8

These key indicators are from the Framework yearly teaching programmes and are significant for tracking pupils' progress towards level 5.

Year 7	Year 8
<p><b>Using and applying mathematics to solve problems</b></p> <ul style="list-style-type: none"> <li>• Break a complex calculation into simpler steps, choosing and using appropriate and efficient operations and methods.</li> <li>• Solve word problems and investigate in a range of contexts, explaining and justifying methods and conclusions.</li> </ul> <p><b>Numbers and the number system</b></p> <ul style="list-style-type: none"> <li>• Understand and use decimal notation and place value; multiply and divide integers and decimals by 10, 100, 1000 and explain the effect.</li> <li>• Simplify fractions by cancelling all common factors; identify equivalent fractions.</li> <li>• Recognise the equivalence of percentages, fractions and decimals; calculate simple percentages and use percentages to compare simple proportions.</li> </ul>	<p><b>Using and applying mathematics to solve problems</b></p> <ul style="list-style-type: none"> <li>• Identify the necessary information to solve a problem; represent problems and interpret solutions in algebraic, geometrical or graphical form.</li> </ul> <p><b>Numbers and the number system</b></p> <ul style="list-style-type: none"> <li>• Add, subtract, multiply and divide integers.</li> </ul>

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<p><b>Calculations</b></p> <ul style="list-style-type: none"> <li>• Extend mental methods of calculation to include decimals, fractions and percentages.</li> <li>• Multiply and divide three-digit by two-digit whole numbers; extend to multiplying and dividing decimals with one or two places by single-digit whole numbers.</li> <li>• Check a result by considering whether it is of the right order of magnitude and by working the problem backwards.</li> </ul> <p><b>Algebra</b></p> <ul style="list-style-type: none"> <li>• Use letter symbols to represent unknown numbers or variables.</li> <li>• Know and use the order of operations and understand that algebraic operations follow the same conventions and order as arithmetic operations.</li> <li>• Plot the graphs of simple linear functions.</li> </ul>	<p><b>Calculations</b></p> <ul style="list-style-type: none"> <li>• Use standard column procedures for multiplication and division of integers and decimals, including by decimals such as 0.6 and 0.06; understand where to position the point by considering equivalent calculations.</li> </ul> <p><b>Algebra</b></p> <ul style="list-style-type: none"> <li>• Simplify or transform linear expressions by collecting like terms; multiply a single term over a bracket.</li> <li>• Substitute integers into simple formulae.</li> </ul>

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<p><b>Shape, space and measures</b></p> <ul style="list-style-type: none"> <li>• Identify parallel and perpendicular lines; know the sum of angles at a point, on a straight line and in a triangle.</li> <li>• Use a ruler and protractor to measure and draw lines to the nearest millimetre and angles, including reflex angles, to the nearest degree.</li> <li>• Recognise and visualise the transformation and symmetry of a 2-D shape:               <ul style="list-style-type: none"> <li>– reflection in given mirror lines and line symmetry;</li> <li>– rotation about a given point and rotational symmetry.</li> </ul> </li> <li>• Convert one metric unit to another (e.g. grams to kilograms); read and interpret scales on a range of measuring instruments.</li> <li>• Know and use the formula for the area of a rectangle.</li> </ul>	<p><b>Shape, space and measures</b></p> <ul style="list-style-type: none"> <li>• Transform 2-D shapes by simple combinations of rotations, reflections and translations, on paper and using ICT; identify all the symmetries of 2-D shapes.</li> <li>• Use units of measurement to estimate, calculate and solve problems in everyday contexts involving length, area, volume, capacity, mass, time, angle and bearings; know rough metric equivalents of imperial measures in daily use (feet, miles, pounds, pints, gallons).</li> </ul>

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<p><b>Handling data</b></p> <ul style="list-style-type: none"> <li>• Compare two simple distributions using the range and one of the mode, median or mean.</li> <li>• Interpret diagrams and graphs (including pie charts), and draw simple conclusions based on the shape of graphs and simple statistics for a single distribution.</li> <li>• Understand and use the probability scale from 0 to 1; find and justify probabilities based on equally likely outcomes in simple contexts.</li> </ul>	<p><b>Handling data</b></p> <ul style="list-style-type: none"> <li>• Estimate probabilities from experimental data; understand that:               <ul style="list-style-type: none"> <li>– if an experiment is repeated there may be, and usually will be, different outcomes;</li> <li>– increasing the number of times an experiment is repeated generally leads to better estimates of probability.</li> </ul> </li> </ul>