

# LEVEL OF LEARNING THRESHOLD GRID Year 9

DEPARTMENT/SUBJECT: MATHEMATICS



BOURNEMOUTH SCHOOL  
FOR GIRLS

Assessment area	Developing	Secure	Excellent
	Grades 1-3	Grades 4-6	Grades 7-9
<b>Number Skills</b>	<ul style="list-style-type: none"> <li>Finding simple squares, cubes and roots</li> <li>Finding factors and multiples of numbers</li> <li>BIDMAS</li> <li>Multiplication and division by a number between 0 and 1</li> <li>Multiplication and division by powers of 10 and decimals</li> <li>Convert numbers to and from standard form</li> </ul>	<ul style="list-style-type: none"> <li>Finding the prime factor decomposition of a number (4)</li> <li>HCF and LCM (4)</li> <li>Solving cubic equations by trial and improvement (4)</li> <li>Using the rules of indices in numeric situations (4)</li> <li>Calculate with numbers in standard form (5)</li> <li>Understanding negative indices (6)</li> <li>Using the product rule for counting (6)</li> </ul>	<ul style="list-style-type: none"> <li>Manipulating fractional indices (7)</li> <li>Calculating upper and lower bounds and error intervals</li> <li>Using bounds in calculations</li> </ul>
<b>Fractions, decimals and percentages</b>	<ul style="list-style-type: none"> <li>Ordering fractions, decimals and percentages (1/2)</li> <li>Calculating with fractions including mixed numbers (3)</li> </ul>	<ul style="list-style-type: none"> <li>Convert between recurring decimals and exact fractions (6)</li> </ul>	
<b>Ratio</b>	n/a		

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<p><b>Algebra</b></p>	<ul style="list-style-type: none"> <li>• Using a calculator, e.g. '1·5<sup>3</sup>' and 'square root of 23·78'</li> <li>• Calculating indices and roots, e.g. '4<sup>3</sup>', '2<sup>3</sup> x 3<sup>2</sup>', 'the cube of 4'</li> <li>• Solving equations, including unknowns on both sides</li> <li>• Expanding brackets such as <math>x(x + 4)</math></li> <li>• Factorising, e.g. <math>x^2 - 5x</math> and <math>12x - 8</math></li> <li>• Deriving and solving equations from diagrams</li> <li>• Simplifying simple algebra</li> <li>• Recognising number sequences</li> <li>• Finding terms in a linear sequence</li> </ul>	<ul style="list-style-type: none"> <li>• Using the rules of indices in numeric situations</li> <li>• Solving inequalities by algebraic methods</li> <li>• Solving equations including involving fractions</li> <li>• Expanding brackets</li> <li>• Factorising expressions, e.g. <math>6(a-b)^2 - 3(a-b)</math></li> <li>• Solving simple quadratics by factorizing</li> <li>• Deriving and solving harder equations from diagrams</li> <li>• Finding the <math>n^{\text{th}}</math> term for a linear sequence</li> </ul>	<ul style="list-style-type: none"> <li>• Simplifying algebra involving powers</li> <li>• Manipulating fractional indices</li> <li>• Understanding negative indices</li> <li>• Rearranging complex equations</li> <li>• Solving algebraic problems</li> <li>• Factoring harder quadratics</li> <li>• Recognising the difference of two squares</li> <li>• Finding the <math>n^{\text{th}}</math> term of a quadratic sequence</li> </ul>
<p><b>Shape and Space</b></p>	<ul style="list-style-type: none"> <li>• Understanding the geometry of triangles and quadrilaterals</li> <li>• Solving problems involving parallel lines</li> <li>• Knowing triangle proofs (exterior angle &amp; angle-sum)</li> <li>• Convert between units of measure</li> <li>• Identifying different symmetries</li> <li>• Solving problems involving similar triangles</li> <li>• Calculating area or circumference of a circle given radius</li> </ul>	<ul style="list-style-type: none"> <li>• Solving problems involving polygons, e.g. interior angles</li> <li>• Understanding, using and solving problems with bearings</li> <li>• Finding interior and exterior angles of polygons</li> <li>• Use compound measure</li> <li>• Understanding similar shapes</li> <li>• Finding volumes of 3D shapes including prisms</li> <li>• Constructing the perpendicular bisector</li> </ul>	<ul style="list-style-type: none"> <li>• Calculating upper and lower bounds and error intervals</li> <li>• Using bounds in calculations</li> </ul>

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	<ul style="list-style-type: none"> <li>• Finding area of triangle, regular polygons, compound shapes</li> <li>• Constructing accurate drawings and angles</li> <li>• Constructing and interpreting plans and elevations</li> <li>• Nets of shapes</li> </ul>	<ul style="list-style-type: none"> <li>• of a given line and angle bisector</li> <li>• Constructing loci</li> <li>• Understand and use scale drawings</li> </ul>	
<b>Handling Data and Probability</b>	<ul style="list-style-type: none"> <li>• Finding the modal class from grouped frequencies</li> <li>• Finding the mean from a discrete frequency distribution</li> </ul>	<ul style="list-style-type: none"> <li>• Apply systematic listing strategies including use of the product rule for counting</li> <li>• Use Venn diagrams to solve problems and identify probabilities</li> <li>• Understand and use frequency trees</li> <li>• Finding mean and median from grouped data</li> </ul>	<ul style="list-style-type: none"> <li>• Use formal Set notation with Venn diagrams and probability</li> </ul>
<b>Reasoning, interpreting and communicating mathematically</b>		<ul style="list-style-type: none"> <li>• Analyse data to compare with theoretical results</li> </ul>	