

## Year 8 Mathematics

In Year 8 students continue to follow the Key Stage 3 curriculum which further develops and builds on knowledge and skills gained from the Year 7 course and the Key Stage 2 curriculum. The Key Stage 3 curriculum, taught through Years 7, 8 and 9 aims to develop and embed the foundations required for the GCSE programme of study that begins in Year 10, including the development of analytical problem solving skills and spatial reasoning. The Year 8 course is split into topics under the four key strands of mathematics; number, algebra, geometry and statistics.

### Methods of deepening and securing knowledge:

<b>Interleaving</b>	Interleaving questions from previous topics helps students to make connections between different areas of mathematics whilst further embedding knowledge and understanding. This is usually done through low stakes starters or plenary tasks.
<b>Challenge and differentiation</b>	In all lessons, teachers use a 'Going for Gold' strategy to differentiate the work. Planning considers students starting points and looks at possible misconceptions.
<b>Questioning</b>	Teachers give students thinking time when posing questions. Questioning is used to develop thinking/reasoning skills as well as identify misconceptions. Variety of retrieval techniques used including cold calling.

	Autumn term 1	Autumn term 2	Spring term 1
Topic(s)	<p><b>Numbers and the number system</b></p> <ul style="list-style-type: none"> <li>Identify and use the prime factorisation of a number.</li> <li>Understand and use standard form.</li> </ul> <p><b>Calculating</b></p> <ul style="list-style-type: none"> <li>Calculate with negative numbers.</li> <li>Apply the correct order of operations.</li> </ul> <p><b>Exploring fractions, decimals and percentages</b></p> <ul style="list-style-type: none"> <li>Explore links between fractions, decimals and percentages.</li> </ul>	<p><b>Understanding risk 1 and 2</b></p> <ul style="list-style-type: none"> <li>Understand the meaning of probability.</li> <li>Explore experiments and outcomes.</li> <li>Develop understanding of probability.</li> <li>Explore experiments and outcomes.</li> <li>Develop understanding of probability.</li> <li>Use probability to make predictions.</li> </ul> <p><b>Algebraic proficiency: tinkering</b></p> <ul style="list-style-type: none"> <li>Understand the concept of a factor.</li> <li>Understand the notation of algebra.</li> <li>Manipulate algebraic expressions.</li> <li>Evaluate algebraic statements.</li> </ul>	<p><b>Proportional reasoning</b></p> <ul style="list-style-type: none"> <li>Explore the uses of ratio.</li> <li>Investigate the connection between ratio and proportion.</li> <li>Solve problems involving proportional reasoning.</li> <li>Solve problems involving compound units.</li> </ul> <p><b>Investigating angles</b></p> <ul style="list-style-type: none"> <li>Develop knowledge of angles.</li> <li>Explore geometrical situations involving parallel lines.</li> </ul>

Assessment	<b>BAM 2</b> - Numbers and the number system. <b>BAM 1</b> - Calculating. <b>BAM 4</b> - Exploring fractions, decimals and percentages.	<b>BAM 13</b> - Understanding risk 1 and 2. <b>BAM 3, 7 and 8</b> - Algebraic proficiency: tinkering.	<b>BAM 5</b> - Proportional reasoning.
CEIAG ( <i>Careers that are linked to that topic</i> )	<b>Fractions, decimals and percentages</b> Sales, investment and marketing.		<b>Proportion</b> - Catering, photography and decorating.

	Spring term 2	Summer term 1	Summer term 2
Topic(s)	<p><b>Calculating fractions, decimals and percentages</b></p> <ul style="list-style-type: none"> <li>• Calculate with fractions.</li> <li>• Calculate with percentages.</li> </ul> <p><b>Visualising and constructing</b></p> <ul style="list-style-type: none"> <li>• Explore enlargement of 2D shapes.</li> <li>• Use and interpret scale drawings.</li> <li>• Use and interpret bearings.</li> <li>• Explore ways of representing 3D shapes.</li> </ul>	<p><b>Solving equations and inequalities</b></p> <ul style="list-style-type: none"> <li>• Solve linear equations with the unknown on one side.</li> <li>• Solve linear equations with the unknown on both sides.</li> <li>• Explore connections between graphs and equations.</li> </ul> <p><b>Calculating space</b></p> <ul style="list-style-type: none"> <li>• Investigate circles.</li> <li>• Discover pi.</li> <li>• Solve problems involving circles.</li> <li>• Explore prisms and cylinders.</li> </ul>	<p><b>Pattern sniffing</b></p> <ul style="list-style-type: none"> <li>• Explore sequences.</li> <li>• Generate terms of a sequence.</li> <li>• Find the nth term of a linear sequence.</li> </ul> <p><b>Algebraic proficiency: visualising</b></p> <ul style="list-style-type: none"> <li>• Plot and interpret linear graphs.</li> <li>• Plot and interpret quadratic graphs.</li> <li>• Model real situations using linear graphs.</li> </ul> <p><b>Presentation of data</b></p> <ul style="list-style-type: none"> <li>• Explore types of data.</li> <li>• Construct and interpret graphs.</li> <li>• Select appropriate graphs and charts.</li> </ul> <p><b>Measuring data</b></p> <ul style="list-style-type: none"> <li>• Investigate averages.</li> <li>• Explore ways of summarising data.</li> <li>• Analyse and compare sets of data.</li> </ul>
Assessment	<b>BAM 6</b> - Calculating fractions, decimals and percentages.	<b>BAM 10</b> - Solving equations and inequalities. <b>BAM 12</b> - Calculating space.	<b>BAM 9</b> - Pattern sniffing. <b>BAM 11</b> - Algebraic proficiency:visualising. <b>End of year assessment</b>

CEIAG (*Careers that are linked to that topic*)

**Visualising and constructing** - architecture, project managing.

### Independent Study

Independent study in Year 7 and 8 is a weekly differentiated worksheet covering content from topics from the Year 7 and Year 8 course. Each independent study aims to interleave topics and help students practise retrieval whilst also developing analytical skills.