

Subject	Year 11 Threshold Concepts – Autumn Term	How to support students' learning
Mathematics	<p data-bbox="450 236 898 264"><b><u>Expressions, formulae and equations</u></b></p> <ul data-bbox="495 272 1167 975" style="list-style-type: none"> <li>• Understand and use algebraic notation</li> <li>• Simplify expressions</li> <li>• Expand and factorise</li> <li>• Expand double brackets</li> <li>• Solve linear equations</li> <li>• Solve linear equations with unknowns on both sides</li> <li>• Solve linear equations with fractions</li> <li>• Use real life formulae</li> <li>• Rearrange formulae</li> <li>• Solve linear simultaneous equations</li> <li>• Represent inequalities on a number line</li> <li>• Solve inequalities</li> <li>• Solve quadratic equations using the formula and by completing the square (Higher tier only)</li> <li>• Solve non-linear simultaneous equations algebraically (Higher tier only)</li> <li>• Manipulate algebraic fractions and solve equations (Higher tier only)</li> <li>• Use iterative methods for solving equations</li> </ul> <p data-bbox="450 1054 607 1083"><b><u>Mensuration</u></b></p> <ul data-bbox="495 1091 1144 1374" style="list-style-type: none"> <li>• Find the perimeter of rectilinear shapes and composite shapes</li> <li>• Know and apply the formulae for rectangles, triangles, trapeziums</li> <li>• Calculate the volume of cuboids and prisms</li> <li>• Calculate the surface area of cuboids and prisms</li> <li>• Calculate the circumference and area of a circle</li> <li>• Calculate perimeters and areas of arcs and sectors</li> </ul>	<ul data-bbox="1249 272 1980 1166" style="list-style-type: none"> <li>• At home you can help support your child with revision of algebra, using <a href="http://www.mathswatch.co.uk">www.mathswatch.co.uk</a> and <a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> (see your teacher for login and password) and in completing past papers on a weekly basis.</li>   <li>• Help your child review the formulae sheets and learn the required formulae.</li> </ul>

	<ul style="list-style-type: none"> <li>• Calculate volume and surface area of 3D shapes</li> <li>• Use length, area and volume scale factors (Higher tier only)</li> </ul> <p><b><u>Applications of graphs</u></b></p> <ul style="list-style-type: none"> <li>• Generate points and plot quadratic, cubic, reciprocal and exponential graphs</li> <li>• Relate factorising of quadratics and completing the square to quadratic graphs (Higher tier only)</li> <li>• Generate points and plot trigonometric graphs (Higher tier only)</li> <li>• Find intersection of linear and quadratic graphs (Higher tier only)</li> <li>• Apply translations and stretches to graphs (Higher tier only)</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage your child to use the correct equipment when working with lines and graphs (a pencil and ruler)</li> </ul>
	<p><b><u>Fractions, decimals and percentages</u></b></p> <ul style="list-style-type: none"> <li>• Decimal addition/subtraction/multiplication/division</li> <li>• Decimal places and significant figures</li> <li>• Simplifying fractions</li> <li>• Adding and subtracting fractions</li> <li>• Multiplying and dividing fractions</li> <li>• Convert between fractions, decimals and percentages</li> <li>• Convert a recurring decimal to a fraction (Higher tier only)</li> <li>• Solve percentage problems including using multipliers</li> </ul> <p><b><u>Ratio, Proportion and rates of change</u></b></p> <ul style="list-style-type: none"> <li>• Solve real world ratio and proportion problems</li> </ul>	<ul style="list-style-type: none"> <li>• At home you can help support your child with revision using <a href="http://www.mathswatch.co.uk">www.mathswatch.co.uk</a> and <a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> (see your teacher for login and password) and in completing past papers on a weekly basis.</li> <li>• Look at real-life examples with banks interest and repayments of loans and car depreciation.</li> </ul>

- Solve problems involving direct and inverse proportion
- Recognise proportion graphs
- Understand growth and decay

**Units of measurement**

- Construct triangles and polygons accurately
- Make accurate scale drawings
- Interpret maps and scales
- Construct bisectors and perpendiculars
- Solve loci problems

- Encourage your child to use a sharp pencil when completing constructions
- Encourage them to think about careers that use construction techniques