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| **Subject**  | **Year 11 Threshold Concepts – Autumn Term**  | **How to support students’ learning**  |
| Mathematics  | **Number** * Multiplication and division
* Factors and multiples
* Highest common factor and lowest common multiple
* BIDMAS

**Standard form and bounds** * Convert numbers to and from standard form and solve problems
* Review rounding and truncating
* Calculate upper and lower bounds (Higher tier only)
* Solve problems involving bounds (Higher tier only)

**Vectors** * Use vectors to define translations
* Use vector notation and find paths as a combination of vectors
* Use the four rules with vectors
* Find the length of a vector (Higher tier only)
* Solve geometry problems with vectors (Higher tier only)

**Expressions, formulae and equations** * Understand and use algebraic notation
* Simplify expressions
* Expand and factorise
* Expand double brackets
* Solve linear equations
* Solve linear equations with unknowns on both sides
* Solve linear equations with fractions
* Use real life formulae
* Rearrange formulae
* Solve linear simultaneous equations
* Represent inequalities on a number line
* Solve inequalities
* Solve quadratic equations using the formula and by completing the square (Higher tier only)
* Solve non-linear simultaneous equations algebraically (Higher tier only)
* Manipulate algebraic fractions and solve equations (Higher tier only)
* Use iterative methods for solving equations

**Mensuration** * Find the perimeter of rectilinear shapes and composite shapes
* Know and apply the formulae for rectangles, triangles, trapeziums
* Calculate the volume of cuboids and prisms
* Calculate the surface area of cuboids and prisms
* Calculate the circumference and area of a circle
* Calculate perimeters and areas of arcs and sectors
* Calculate volume and surface area of 3D shapes
* Use length, area and volume scale factors (Higher tier only)
 | * Encourage your child to practise their times tables up to 15 at home and learn the square and cube numbers.
* When completing past papers check that your child is showing all their working out and setting their work out correctly.
* At home you can help support your child with revision of algebra, using [www.mathswatch.co.uk](http://www.mathswatch.co.uk/)  and [www.sparx.com](https://sparxmaths.com/)(see your teacher for login and password) and in completing past papers on a weekly basis.

                 * Help your child review the formulae sheets and learn the required formulae.
* Encourage your child to use the correct equipment when working with lines and graphs (a pencil and ruler)

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|   | **Fractions, decimals and percentages** * Decimal addition/subtraction/multiplication/division
* Decimal places and significant figures
* Simplifying fractions
* Adding and subtracting fractions
* Multiplying and dividing fractions
* Convert between fractions, decimals and percentages
* Convert a recurring decimal to a fraction (Higher tier only)
* Solve percentage problems including using multipliers

  **Ratio, Proportion and rates of change** * Solve real world ratio and proportion problems
* 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
 |  | * At home you can help support your child with revision using [www.mathswatch.co.uk](http://www.mathswatch.co.uk/)  and [www.sparx.com](http://www.sparx.com)
* (see your teacher for login and password) and in completing past papers on a weekly basis.
* Look at real-life examples with banks interest and repayments of loans and car depreciation.
* Encourage your child to use a sharp pencil when completing constructions
* Encourage them to think about careers that use construction techniques
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