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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 |