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| **Subject** | **Year 9 Higher Threshold Concepts – Spring Term** | **How to support students’ learning** |
| Mathematics | **Functions**   * Rearrange formulae to change the subject where the subject appears once only. * Form and substitute into functions * Interpret the reverse process of a function as an inverse function * Interpret the succession of two functions as a composite function * Substitute into composite functions   **Sequences**   * Generate sequences using the position-to-term rule * Find the position-to-term rule of arithmetic, quadratic and geometric sequences * Understand and use special sequences   **Estimation and Approximation**   * Find error intervals * Truncate decimals * Find error intervals for truncated numbers   **Linear Graphs**   * Plot straight-line graphs * Find and interpret the equation of straight lines graphs * Interpret the gradient and intercept of more complex linear equations * Solving simultaneous equations graphically   **Ratio and Proportion**   * Calculate one quantity from another, given the difference in a ratio * Interpret a ratio of two parts as a fraction of a whole * Combine and change ratios * Calculate with ratios and algebra * Solve direct proportion word problems * Solve inverse proportion word problems * Perform currency conversions, including graphically   **Transformations**   * Perform and describe reflections * Perform and describe rotations * Perform and describe translations * Perform and describe enlargements * Combine the four transformations   **Percentages**   * Increase and decrease a quantity by a percentage, with and without a calculator * Find original values in percentage calculations * Find the percentage an amount has been changed by * Calculate simple interest in financial contexts | * Encourage your child to practise their algebra skills * Discuss how to substitute and use real-life formulas, e.g. cooking instructions based on weight * Encourage your child to have the correct equipment for lessons, e.g. a calculator * Use [www.sparx.com](https://sparxmaths.com/)for support if needed. Teachers will have provided your child with a login and password * Encourage your child to show all their working out. If they have homework online, then encourage them to write down all their working out in their exercise books * Encourage your child to learn their times tables, prime numbers below 100 and square numbers up to 225 (152) * Discuss real-life examples of sequences, e.g. house numbers * Encourage your child to have the correct equipment for lessons, e.g. a pencil, ruler, calculator * Use [www.sparx.com](https://sparxmaths.com/)for support if needed. Teachers will have provided your child with a login and password * Encourage your child to show all their working out. If they have homework online, then encourage them to write down all their working out in their exercise books * Encourage your child to review their rounding knowledge * Discuss real-life error intervals, e.g. a box of cereal may not contain exactly the weight that is mentioned on the box * Encourage your child to have the correct equipment for lessons, e.g. a calculator * Use [www.sparx.com](https://sparxmaths.com/)for support if needed. Teachers will have provided your child with a login and password * Encourage your child to show all their working out. If they have homework online, then encourage them to write down all their working out in their exercise books * Encourage your child to use the website www.GeoGebra.org to plot functions to see what their graphs look like * Encourage your child to have the correct equipment for lessons, e.g. a pencil, ruler, calculator * Use [www.sparx.com](https://sparxmaths.com/)for support if needed. Teachers will have provided your child with a login and password * Encourage your child to show all their working out. If they have homework online, then encourage them to write down all their working out in their exercise books * Encourage your child to look at real-life graphs and tables of data * Discuss real-life applications of ratio and proportion, e.g. baking and currency exchange (direct proportion), the fact it takes longer for 2 people to paint the same fence than 3 people (indirect proportion) * Encourage your child to have the correct equipment for lessons, e.g. a pencil, ruler, calculator * Use [www.sparx.com](https://sparxmaths.com/)for support if needed. Teachers will have provided your child with a login and password * Encourage your child to show all their working out. If they have homework online, then encourage them to write down all their working out in their exercise books * Encourage your child to look at real-life symmetry, rotation and size changes within everyday objects * Encourage your child to have the correct equipment for lessons, e.g. a pencil, ruler * Use [www.sparx.com](https://sparxmaths.com/)for support if needed. Teachers will have provided your child with a login and password * Encourage your child to show all their working out. If they have homework online, then encourage them to write down all their working out in their exercise books * Encourage your child to use a multiplier when solving percentage problems * Discuss real-life percentage problems, e.g. discounts, interest rates, tax etc * Encourage your child to have the correct equipment for lessons, e.g. a calculator * Use [www.sparx.com](https://sparxmaths.com/)for support if needed. Teachers will have provided your child with a login and password * Encourage your child to show all their working out. If they have homework online, then encourage them to write down all their working out in their exercise books |