|  |  |  |
| --- | --- | --- |
| **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
 |