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| **Subject** | **Year 9 Higher Threshold Concepts – Summer Term** | **How to support students’ learning** |
| Mathematics | **Perimeter, Area and Volume**   * Use and convert standard units of measurement for length, area, volume, mass, time and money. * Calculate the area of composite shapes * Calculate the surface area of prisms * Calculate the volume of prisms   **Congruent and Similar Shapes**   * Understand similarity * Find unknown sides in similar shapes * Understand congruence * Prove that two triangles are congruent * Find the perimeter, area, surface area and volume of similar shapes   **Compound Units**   * Perform calculations with speed, distance and time * Perform calculations with rates * Perform calculations with density and pressure * Plot and interpret real-life graphs, including distance-time graphs   **Pythagoras and Trigonometry**   * Use and apply Pythagoras’ Theorem in 2D * Understand the terms sin, cos and tan * Find unknown sides in right-angled triangles * Find unknown angles in right-angled triangles * Understand the terms angles of elevation and depression   **Circles and Cylinders**   * Identify the parts of a circle * Find the area and circumference of circles * Find the area and perimeter of composite shapes with semi-circles and quadrants * Find the volume and surface area of cylinders   **Charts and Averages**   * Understand different types of data * Draw and interpret different types of graphs and chart * Present data and make conclusions * Compare populations using diagrams * Calculate averages and range * Choose suitable averages and solve problems * Interpret frequency tables with grouped data * Calculate averages from grouped frequency tables   **Bearings, Scale Diagrams and Constructions**   * Measure and draw bearings * Calculate bearings * Draw and interpret scale drawings * Construct angle bisectors * Construct perpendicular bisectors * Construct perpendicular lines * Construct geometric shapes | * Encourage your child to think about units when talking about weight, distances, time and money * Encourage your child to learn formulas for calculating the areas of basic 2D shapes, e.g. rectangles, triangles, parallelograms, trapeziums * 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 rotation and size changes within everyday objects * Encourage your child to have the correct equipment for lessons, e.g. a pencil, protractor, 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 think about units when talking about weight, distance and speeds * Encourage your child to think about planning trips and journeys to see these in real-life * 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 look back at their notes and to learn Pythagoras’ Theorem * Encourage your child to learn the trigonometric ratios SOHCAHTOA and the special angles * 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 look back at their notes on circles * Encourage your child to have the correct equipment for lessons, e.g. a pencil, ruler, pair of compasses, 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 * Encourage your child to have the correct equipment for lessons, e.g. a pencil, ruler, protractor, 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 think about where they would see scale drawings outside of the classroom and what careers would work with scale drawings and maps * Discuss real-life applications of bearings, e.g. compass directions * Encourage your child to have the correct equipment for lessons, e.g. a pencil, ruler, pair of compasses, calculator, protractor * 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 |