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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
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