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| Year 10 – Foundation Tier | **Topic: Unit 8 – Perimeter, Area and Volume 1**  **Period:** Autumn 1 |
| **Overview of topic:**  Students will build on their knowledge from KS3 in dealing with geometrical concepts of perimeter, area and volume, applying them to both 2-dimensional and 3 dimensional shapes where appropriate   * Rectangles, parallelograms and triangles * Trapezia * Changing units * Area of compound shapes * Surface area of 3D solids * Volume of prisms * Further volume and surface area * Compound measures | |
| **Key** **knowledge:**   * Find the area/perimeter of a given shape, stating the correct units. * Given two 2D shapes that have equal areas, work out all the dimensions of the sides of the shapes. * Problems involving straight-forward and compound shapes in a real-life context should be explored to reinforce the concept of area. For example, the floor plan of a garden linked to the purchase of grass seed. * Justify whether a certain number of small boxes fit inside a larger box. * Calculate the volume of a triangular prism with correct units.   **Key vocabulary:**   |  |  | | --- | --- | | Tier 2 | Tier 3 | | * Area * Formula * Length * Width * Compound * Measurement * Volume * Edge * Face * Units * Conversion | * Triangle * Rectangle * Parallelogram * Trapezium * Perimeter * Prism * Polygon * Cuboid * Symmetry * Vertices | | **Key skills:**   * Indicate given values on a scale, including decimal value; * Know that measurements using real numbers depend upon the choice of unit; * Convert between units of measure within one system, including time and metric units to metric units of length, area and volume and capacity e.g. 1ml = 1cm3; * Make sensible estimates of a range of measures in everyday settings; * Measure shapes to find perimeters and areas using a range of scales; * Find the perimeter of * rectangles and triangles; * parallelograms and trapezia; * compound shapes; * Recall and use the formulae for the area of a triangle and rectangle; * Find the area of a trapezium and recall the formula; * Find the area of a parallelogram; * Calculate areas and perimeters of compound shapes made from triangles and rectangles; * Estimate surface areas by rounding measurements to 1 significant figure; * Find the surface area of a prism; * Find surface area using rectangles and triangles; * Convert between metric area measures. * Identify and name common solids: cube, cuboid, cylinder, prism, pyramid, sphere and cone; * Sketch nets of cuboids and prisms; * Recall and use the formula for the volume of a cuboid; * Find the volume of a prism, including a triangular prism, cube and cuboid; * Calculate volumes of right prisms and shapes made from cubes and cuboids; * Estimate volumes etc by rounding measurements to 1 significant figure; * Convert between metric volume measures; * Convert between metric measures of volume and capacity e.g. 1ml = 1cm3. |
| **Co-curricular opportunities:** Geometry skills are a vital key skill across multiple other areas of study including Science, Resistant Materials, Art, Graphics, Food Technology and many others | **Key reading skills taught and key texts:**  Clarify – identify key vocabulary in questions and be fluent in understanding the meanings  Question – from a worded question, what Maths is required to be done in order to get a solution?  **Wider Reading Opportunities/Links:** |
| **How can I use this information at home?**   * Conversation starters with your children to discuss their learning * Support your child in carrying out independent research around the topic * Visit your local library (or BorrowBox), museums, or other locations to explore the topic * Promote books/other texts that explore this topic (see reading section) * Help your child to learn the key vocabulary * Encourage practice and consolidation through completion of homework, TTRockStars and using other online learning platforms * Encourage them to practice their mathematical skills in a variety of everyday situations wherever the opportunity arises. | |