|  |  |
| --- | --- |
| 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 meaningsQuestion – 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.
 |