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**Knowledge Rich Curriculum Plan**

Year 11 Foundation+ Geometry 4



| **Lesson/Learning Sequence** | **Intended Knowledge:**  *Students will know that…* | **Tiered Vocabulary** | **Prior Knowledge:**  *In order to know this, students need to already know that…* | **Assessment** |
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| **To learn how to calculate the surface area of prisms** | * Students will know how to find the surface area of prisms including cubes, cuboids and triangular prisms * Students will know how to find the surface area of other prisms including compound prisms. * Students will know how to solve problems involving the surface area of prisms | **Surface area** - the total area of all of the faces of a 3D solid added together  **Prism** – A solid object with two identical ends and flat sides  **Compound Solid** - a solid that is made up of 2 or more solids. | * Students need to know how to calculate the area of squares, rectangles, triangles and compound shapes |  |
| **To learn how to calculate the surface area of cylinders** | * Students will know how to find the surface area of cylinders. Students will know how to calculate this in terms of π as well as by using a calculator. * Students will know how to solve problems involving the surface area of cylinders |  | * Students need to know how to calculate area and circumference of circles |  |
| **To learn how to calculate the surface area of pyramids, cones and spheres** | * Students will know how to find the surface area of pyramids. * Students will know how to find the surface area of cones. * Students will know how to find the surface area of sphere and hemi-spheres. |  | * Students will need to know how to find missing lengths using Pythagoras’ theorem |  |
| **To learn how to calculate the volume of prisms** | * Students will know that: Volume of a Prism = Area of Cross Section x Length * Students will know how to find the volume of cubes, cuboids, triangular prisms and compound prisms by calculating the area of the cross-section and multiplying it by the length of the prism * Students will know how to solve problems involving the volume of prisms | **Volume** – the amount of space inside a 3D object  **Prism** – A solid object with two identical ends and flat sides  **Compound Solid** - a solid that is made up of 2 or more solids. | * Students need to be able to calculate the area of squares, rectangles, triangles and compound shapes |  |
| **To learn how to calculate the volume of cylinders** | * Students will know how to find the volume of cylinders. Students will know how to leave their answers for this in terms of π. * Students will know how to work backwards from the volume of a cylinder to calculate its height or the radius/diameter * Students will know how to solve problems involving the volume of cylinders |  | * Students need to be able to calculate the area of circles |  |
| **To learn how to calculate the volume of pyramids, cones and spheres** | * Students will know how to find the volume of pyramids. * Students will know how to find the volume of cones. * Students will know how to find the volume of spheres and hemi-spheres. |  | * Students will need to know how to substitute into formulae |  |
| **To learn how to calculate Density, Mass and Volume** | * Students will know how to calculate mass, density or volume using two variables. * Students will know how to combine the densities, mass and volumes of two materials/liquids to make a third material/liquid. Students will know how to find missing values from a liquid using the density, mass or volumes for the other liquids. * Students will know how to solve more complex problems involving density, mass and volume | **Density** – a measurement of the amount of a substance contained in a certain volume  **Mass** – the weight of an object | * Students need to be able to convert units for mass * Students need to be able to convert units for length and understand how to convert units for volume |  |