

# Year 12 T6

## Maths Overview

### Geometry and Measure

Learning Outcomes	Elaboration	Textbook
Students should be able to: <ul style="list-style-type: none"> <li>· describe and transform 2D shapes using single or combined rotations, reflections, translations, or enlargements by a positive scale factor;</li> </ul>	Column vector notation for translation should be known. To include reflection in the line $y = \pm x$ Find the inverse of transformations.	<b>30</b>
<ul style="list-style-type: none"> <li>· use positive fractional and negative scale factors;</li> </ul>		<b>31</b>
<ul style="list-style-type: none"> <li>· distinguish properties that are preserved under particular transformations;</li> </ul>	Recognise that translations, rotations and reflections preserve length and angle; recognise that enlargements preserve angle but not length.	
<ul style="list-style-type: none"> <li>· understand and use the effect of enlargement for perimeter area and volume of shapes and solids;</li> </ul>	Use mathematical similarity and prove triangles similar. Know that angles remain unchanged and corresponding sides are in the same ratio. Use the relationship between the surface areas of similar 3-D shapes and between volumes of similar 3-D shapes, including the frustum of a cone.	<b>32</b>
<ul style="list-style-type: none"> <li>· solve mensuration problems that involve more complex shapes (including arc length and area of sector) and solids (including cones, spheres and frustums); and</li> </ul>	Finding surface area and volume of compound solids constructed from cubes, cuboids, cones, spheres, hemispheres, cylinders and prisms.	<b>26</b>
<ul style="list-style-type: none"> <li>· understand and use dimensions of formula for perimeter, area and volume.</li> </ul>	Recognise that $\pi d$ is a linear measurement and that $\pi r^2$ is an area measurement. Identify from a range of formulae those which denote (say) volume: $4\pi r^2, \frac{4}{3}\pi r^3, \frac{1}{3}\pi r^2 h, r(\pi + 2)$	<b>28</b>