| Year 11 |  | Term 1 |  | Term 2 |  | Term 3 |  |
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|  | Topic Title and NC link | Statistics and Quadratics | Volume and Transformations | Other graphs and vectors |  |  |  |
|  | Pupils should know... | - Shape of a quadratic parabola <br> - Recognise and find key points of quadratic parabolas <br> - Compare data sets using averages/range <br> - Understand sampling <br> - How to use scale factors/similarity <br> - Key facts about bearings (3 rules) | - Concept of surface area and volume <br> - Properties of 3D shapes <br> - Reasoning with volume and surface area <br> - Volume is a unit of space inside a shape <br> - Features of 4 transformations <br> - What information is required to describe transformations How to identify between transformations <br> - How to combine transformations | - The shape of a cubic function <br> - Recognise and identify linear, quadratic, cubic and reciprocal functions <br> - Sketch the shape of a function <br> - Match functions to graphs <br> - How to identify shapes from nets <br> - Draw nets <br> - Draw plans and elevations <br> - Vectors are movement <br> - How to combine vectors | Exam preparation and revision | Exam preparation and revision | Exam preparation and revision |
|  | Pupils should be able to do... | - Calculate key points of a quadratic <br> - Sketch/plot a quadratic from the equation <br> - Find and interpret mean, median, mode and range | - Calculate the surface area of cones, spheres and cylinders <br> - Calculate surface areas of solids <br> - Recall and apply formulae for cylinders and spheres | - Draw a cubic function <br> - Draw a reciprocal function <br> - Describe a movement using vectors <br> - Add/subtract vectors |  |  |  |



|  |  | - Concept of ‘average’ <br> - Find midpoint of an interval <br> - Basic ratio \& proportion <br> - Accurate measurement with ruler \& protractor <br> - Four points of compass <br> - Angle facts, including between parallel lines <br> - Conversion between metric units <br> - Equation of basic lines <br> - Symmetry <br> - Column vectors <br> - Angles and direction | parallelogram, circle and triangle <br> - Circumference of a circle formula <br> - Nets of 3D shapes <br> - Volume of prism <br> - Substitution <br> - Units of length, area and volume <br> - Naming basic 2d shapes |  | How to plot a linear and quadratic graph The concept of a vector as a movement identifying $x$ and y axis How to plot coordinates How to multiply by a scale factor How to find a fraction of an amount |  |  |  |  |
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