# Y9 Maths Mastery Curriculum

| Core knowledge to be mastered Y9 maths | Core skills to be mastered Y9 maths |
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| • To know that Cartesian coordinates are written as a bracket with 2 or 3 values.<br>• To know a Linear Graph is a straight line.<br><br>• Understand direct proportion as increases or decreases simultaneously.<br>• Understand indirect proportion as increase and decrease<br>• Calculate using scales<br><br><br>• Know the notation of standard form used for large and small numbers.<br>• Know and understand the pattern of a geometric and arithmetic sequence. | • Plot a Cartesian coordinate on a 2D or 3D plane.<br>• Plotting a Linear graph using coordinates, linking the graph to its equation. Completing a table of values.<br>• Use equivalent ratios to find increase or decrease<br><br><br>• Use direct and inverse proportion when calculating recipes for new amounts.<br>• Apply standard form in real life contexts such as size of bacteria, planets etc.<br>• Finding first and second common differences and common ratio. Find the nth term of a geometric sequence a and r. |
| • Change the subject of a formula by rearranging.<br><br>• Simplify an expression by expanding a single bracket<br><br>• Simplify an expression by factorisation a single bracket<br><br>• Use the four operations with fractions involving algebraic expressions. | • Use the four rules to manipulate a formula to change the subject.<br><br>• Use multiplication and manipulation of algebraic terms.<br><br>• Use division and manipulation of algebraic terms, including common factors.<br>• Manipulate fractions using the appropriate operation, and including equivalents. |
| • Construct bisectors and loci from a real life context.<br><br><br>• know and understand angles in parallel lines, perpendicular and parallel lines.<br>• Know key formulae and calculate angles in polygons, both interior and exterior.<br><br><br>• Know when shapes are congruent (same) or similar (transformed). | • Use the correct mathematical equipment (compass, protractor, ruler) to construct accurate drawings for the purpose of the problem.<br>• Apply knowledge to angles on diagonals within different quadrilaterals.<br>• Use key facts such as (angles in a triangle, straight line, a point) to calculate interior and exterior angles. Reverse problems to find the size of a polygon.<br>• Use proportionality/ratio to calculate missing sides of similar shapes.<br>• Identify congruency by position and size of angles and lengths. |

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| | • Prove congruency using SAS, ASA, SSS notation. <br><br> • Construct and solve equations and inequalities, and where appropriate, list all integer solutions. |
| • Know the definitions of the inequality symbols <br><br> • Know that the intersection of two linear graphs is the solution to both the equations. <br> • Recognise and draw quadratic graphs and other functions. | • Draw two linear equations on a graph and find the coordinates of the intersection. <br> • Use a calculator table function and written methods to plot and draw the graphs of functions. |
| • Explore Pythagoras' theorem in right angled triangles. <br> • Know how to rotate and reflect a shape given a mirror line or point of rotation on a set of axes. <br> • Recall appropriate formulae for 3D shapes. | • Apply to worded and contextual problems. <br> • Use tracing paper to accurately transform the shape. <br><br> • Substitute numbers into the formulae for volume and surface area of pyramids, cones and spheres. <br> • Rearrange these formulae. |
| • Making decisions informed by mathematical comparison of data. <br> • Represent data sets in a stem and leaf diagram <br><br> • Understand a scatter graph involves two variables. <br><br> • Read and interpret a scatter graph | • Find and compare mean, median, mode and range for two data sets. <br><br> • Draw an ordered stem and leaf diagram and find the averages from it. <br><br> • Plot information on two variables onto a graph, clearly labelled with appropriate scales <br><br> • Describe the trend of a scatter graph <br><br> • Draw a line of best fit <br><br> • Take interpolated or extrapolated data from a line of best fit. |