

**Learning Programme – Mathematics – 5<sup>th</sup> Year – Set 1**

<b>Topic/ Content</b>	<b>Objectives/Skills (topic grade in brackets)</b>	<b>Homework</b>	<b>Assessment</b>	<b>Success Criteria (GCSE grades)</b>	<b>Stretch &amp; Challenge (Thirst for Learning)</b>
	<b>Michaelmas First Half Term</b>				
<b>Equation of a Circle</b>	Recognise and use the equation of a circle with centre at the origin (7). Find the equation of a tangent to a circle at a given point (9).	Two to three teacher marked pieces of homework will be set each half-term.	Half Term Test (week before October half-term)	Mainly determined from Half-Term test, however, class work & homework may also be used.  GCSE Grade boundaries dependent on difficulty of test.	Students will be challenged using extension questions on the topics they are studying, designed to develop their ability to solve multi-staged problems
<b>Coordinates in 3 dimensions</b>	Use co-ordinates in three dimensions.				
<b>Vectors</b>	Use vector notation (6). Express positions and lines in terms of vectors (6). Solve geometric problems using vectors (8).				
<b>Trigonometric graphs</b>	Be able to calculate sine, cosine and tangent of angles greater than 90° (8). Be able to draw graphs sine, cosine and tangent (8). Know the exact values of $\sin\theta$ and $\cos\theta$ and $\tan\theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ, 60^\circ$ and $90^\circ$ (7).				
<b>Further trigonometry</b>	Use the sine and cosine rules to find unknown lengths and angles of any triangle (7). Find the area of any triangle (7).				
<b>Inverse and Composite Functions</b>	Interpret the reverse process as the 'inverse function' and the succession of two functions as a 'composite function' (8). Be able to use of $f(x)$ , $fg(x)$ and $f^{-1}(x)$ notation (6/8).				
<b>Iterative Processes</b>	Find approximate solutions to equations numerically using iteration, including the use of suffix notation in recursive formulae (7).				
<b>Transforming graphs</b>	Be able to use function notation. Sketch graphs of $y=af(x)$ , $y=f(ax)$ , $y=f(x)+a$ , $y=f(x+a)$ given the graph of $y=f(x)$ (7/8).				
	<b>Half Term - End of GCSE</b>				