Hanley Castle High School curriculum outline for parents: **Maths**

		Autumn Term		Spring Term		Summer Term	
Year 11 Stage 11	**Topic** Big question / Overview	investigating properties of shapes Apply Pythagoras' theorem in three dimensions. Apply trigonometry in three dimensions. Calculating simplify surd expressions involving squares and rationalise denominators. Solving equations and inequalities I Solve quadratic equations. Mathematical movement I Explore enlargement of 2D shapes	Algebraic proficiency: tinkering Solve problems involving functions. Proportional reasoning construct equations that describe direct and inverse proportion. Pattern sniffing recognise and use simple geometric progressions. Solving equations and inequalities II solve quadratic inequalities in one variable.	Algebraic proficiency: visualising I recognise, sketch and interpret graphs of exponential functions and trigonometric functions Analysing statistics construct and interpret diagrams for grouped discrete data and continuous data. Algebraic proficiency: visualising II apply the concepts of average and instantaneous rate of change.	Mathematical movement II use vectors to construct geometric arguments and proofs. Revision and Practice Papers	Revision and Practice Papers	
	Disciplinary knowledge/skills	Reasoning and problem solving with Pythagoras, Trigonometry and surds.	Developing proportional reasoning skills.	Reasoning and problem-solving involving visualising graphical relationships, statistics and rates of change..	Problem solving and proof with vectors.		
	New vocabulary	Diagonal (Face Diagonal, Space Diagonal) Plane Angle of elevation, angle of depression Rationalise (Quadratic) equation Rearrange Complete the square Maximum, minimum Parabola	Mapping Function Inverse function Composite function Direct proportion Inverse proportion Multiplier First (second) difference Geometric Progression	Exponential Quadratic, cubic, reciprocal, exponential Parabola Asymptote Maximum, minimum, period Gradient, y-intercept, x-intercept, root Frequency density Histogram Average rate of change Instantaneous rate of change	Vector Scalar Constant Magnitude Collinear		