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

		Autumn Term		Spring Term		Summer Term	
Year 9 Stage 9	**Topic** Big question / Overview	Calculating Calculate with roots and integer indices. Visualising and constructing 1 (bearings) Explore and understand scale drawing and maps.	Visualising and constructing 2 (constructions) Use ruler and compass method to construct bisectors. Algebraic proficiency: tinkering Manipulating algebraic expressions.	Proportional reasoning Change freely between compound units. Solve problems involving similar shapes. Pattern sniffing Explore and generate Fibonacci sequence and quadratic sequences.	Solving equations and inequalities I Solve linear inequalities. Calculating space Caculate exactly with multiples of π. Apply Pythagoras' theorem in two dimensions. Conjecturing Use geometrical reasoning to construct simple proofs.	Algebraic proficiency: visualising Understand and use the gradient of a straight line. Plot and interpret graphs of quadratic functions. Solving equations and inequalities II Solve two linear simultaneous equations algebraically and graphically.	Understanding risk Use tree diagrams to list outcomes. Presentation of Data Construct and interpret graphs.
	Disciplinary knowledge/skills	Problem solving involving checking and approximating. Reasoning and problem solving with scale factor and bearings	Problem solving involving constructions. Problem solving involving multiplying linear expressions and factorising a quadratic expression.	Reasoning and problem-solving involving proportion and compound units of measure. Problem solving and exploring Fibonacci type sequences and quadratic sequences.	Developing skills to solve simple and complex linear inequalities. Problem solving and reasoning involving calculating missing lengths, area and angles.	Problem solving involving gradient and intercepts. Developing skills to solve simultaneous equations.	Representing and interpreting data - using tree diagrams, time series, compound bar charts, stem and leaf diagrams and scatter diagrams.
	New vocabulary	Power Root Index, Indices Standard form Inequality Truncate Round Minimum, Maximum Interval Decimal place Significant figure Similar, Similarity Enlarge, enlargement Scaling Scale factor Centre of enlargement Object Image Scale drawing Bearing Plan, Elevation	Compasses Arc Line segment Perpendicular Bisect Perpendicular bisector Locus, Loci Plan Elevation Inequality Identity Equivalent Equation Formula, Formulae Expression Expand Linear Quadratic	Direct proportion Inverse proportion Multiplier Linear Congruent, Congruence Similar, Similarity Compound unit Density, Population density Pressure Term Term-to-term rule Position-to-term rule nth term Generate Linear Quadratic First (second) difference Fibonacci number Fibonacci sequence	(Linear) inequality Unknown Manipulate Solve Solution set Integer Circle, Pi Radius, diameter, chord, circumference, arc, tangent, sector, segment (Right) prism, cylinder Cross-section Hypotenuse Pythagoras' theorem Congruent, Similar (shapes), Hypotenuse Conjecture Derive Prove, proof Counterexample	Function, equation Quadratic, cubic, reciprocal Gradient, y-intercept, x-intercept, root Sketch, plot Kinematic Speed, distance, time Acceleration, deceleration Linear, non-linear Parabola, Asymptote Rate of change Equation Simultaneous equation Variable Manipulate Eliminate Solve Derive Interpret	Outcome, equally likely outcomes Event, independent event, dependent event Tree diagrams Theoretical probability Experimental probability Random Bias, unbiased, fair Relative frequency Enumerate Set Categorical data, Discrete data Continuous data, Grouped data Axis, axes Time series Compound bar chart Scatter graph (scatter diagram, scattergram, scatter plot) Bivariate data (Linear) Correlation Positive correlation, Negative correlation Line of best fit Interpolate Extrapolate Trend