SUBJECT: Maths

NESTON HIGH SCHOOL

KS4 CURRICULUM PLAN 2020-21

KS4 Knowledge and key skills

YEAR 10	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
TOPIC	***Algebra & Number***	***Decimals, Percentages & Ratio***	***Probability & Statistics***	***Algebra***	***Geometry***	***Geometry***
Knowledge	Simultaneous equations, linear graphs and graphical inequalities. Indices & surds.	Recurring decimals, percentages, ratio & direct and inverse proportion.	Calculating probabilities using Venn and tree diagrams where requested. Calculate and interpret statistics such as averages, range, quartiles and inter-quartile range from data or from diagrams drawn such as cumulative frequency and box plots and histograms.	Expand and simplify 3 polynomial expressions. Solve quadratics by factorising, using the quadratic formula and by completing the square. Simplify and perform all four operations with algebraic fractions.	Loci & transformations including combined transformations, negative scale factor enlargement.	Surface area & volume including converting between units of volume and capacity. Review Pythagoras' theorem and right-angled triangle trigonometry.
Skills	Learn alternative methods for solving simultaneous equations and the linke between the solutions and their graphs.	Be able to apply alebraic knowledge to conversion between recurring deicmals and fractions. Make connections between graphs, proportion questions and real life applications.	Ability to convert data and informaton into various diagrams and develop further skills in interpreting data in context.	Understanding the 3 methods for solving quadaratics and the reasoning behind the need for each one. Further enhancement of algebraic manipulation skills.	Use of mathematical equipment to construct real-life scale drawings. Understanding further manipulations of shapes.	Be able to alternative between 3D shapes and their nets to find are and volume. Understand the ratios involved in trigonometry, identify the correct one and apply to worded problems.
Key Vocab	Equate, intersection, surd, rationalise the denominator, exact value.	Recurring, irrational, simple interest, compound interest.	Turning point, discriminant, quartile, frequency density, coefficient.	Polynomial, expand, coefficient, quadratic, formulae.	Cartesian, loci, column vector, object, image.	Capacity, prism, cross-section, adjacent.

YEAR 11						
TOPIC	***Geometry & Algebra***	***Geometry & Number***	***Geometry & Real-Life Graphs***	***Algebra***	***Revision***	
Knowledge	Pythagoras' theorem and right-angled trigonometry in 3D-shapes. Sine, cosine rule and area formula for non-right-angled triangles. Graphs including trigonometric.	Sequences, algebraic proof and quadratic inequalities. Angles, circles and compound measures.	Similarity, congruency, vectors, distance-time and velocity time graphs.	Transforming graphs, perpendicular lines including the equation of a tangent.		
Skills	Undertsand how to apply higher level trigonometry formulae in order to find missing lengths and angles in increasingly complex problems.	Identify types of sequences and recall appropriate methods of calculating accordingly. Present logical arguments to prove algeraic facts. Understand the connections within properties of common shapes and apply these to more complex shapes.	Identify the common properties of 'different' shapes and apply suitable connections. Interpret graphs representing real-life scenarios.	Perform and identify changes to graphs according to the 4 types of transformations. Transfer previous knowledge of circles to situations involving equations.		
Key Vocab	Parabola, minimum point, plane.	Density, Mass, polygon, supplementary.	Similar shapes, congruent shapes, vector, area & volume scale factor, velocity.	Perpendicular, tangent, gradient, vector		

Key Knowledge Transfer