Maths	Year 10 Higher SOW Summary
	Key Concepts
TOPIC	
1	INTRODUCTION TO TRIGONOMETRY
Key Concepts	Make links to similarity (including trigonometric ratios) and scale factors.
	Know the exact values of sinx, cosx and tanx for x = 0, 30, 45, 60 and 90.
	Know the trigonometric ratios for sinx, cosx and tanx.
	Apply the definition of sinx, cosx and tanx to find the angles and lengths in right-angled triangles in two dimensional figures.
2	CALCULATING
Key Concepts	Estimate powers and roots of any given positive number.
	Calculate with roots, and with integers and fractional indices.
	Calculate exactly with surds.
	Apply and interpret limits of accuracy, including upper and lower bounds.
3	SOLVING EQUATIONS AND INEQUALITIES I
Key Concepts	Estimate powers and roots of any given positive number.
	Calculate with roots, and with integers and fractional indices.
	Calculate exactly with surds.
	Apply and interpret limits of accuracy, including upper and lower bounds.
4	MATHEMATICAL MOVEMENT I
Key Concepts	Identify, describe and construct similar shapes, including on coordinate axes, by considering enlargement (including fractional scale factors).
	Make links between simliarity and scale factors.
	Describe the changes and invariance achieved by combinations of rotations, reflections and translations.
5	ALGEBRAIC PROFICIENCY: TINKERING
Key Concepts	Simplify and manipulate algebraic expressions involving algebraic fractions.
	Manipulate algebraic expressions by expanding products of more than two binomials.
	Simplify and manipulate algebraic expressions (including those involving surds) by expanding products of two binomials and factorising quadratic expressions of the form x^2 + bx + c, including the difference of two squares.
	Manipulate algebraic expressions by factorising expressions of the form ax^2 +bx + c.
6	PROPORTIONAL REASONING
Key Concepts	Interpret equations that describe direct and inverse proportion.
	Recognise and interpret graphs that illustrate direct and inverse proportion.
	Understand that X is inversely proportional to Y is equivalent to X is proportional to 1/Y.

7	**CALCULATING SPACE**
Key Concepts	Calculate surface area and volume of spheres, pyramids, cones and composite solids.
	Apply the concepts of congruence and similarity, including the relationships between length, areas and volumes in similar figures.
8	**CONJECTURING**
Key Concepts	Apply and prove the standard circle theorems concerning angles, radii, tangents and chords, and use them to prove related results.
9	**ALGEBRAIC PROFICIENCY: VISUALISING I**
Key Concepts	Plot and interpret graphs (including exponential graphs) and graphs of non-standard functions in real contexts, to find approximate solutions to problems such as simple kinematic problems involving distance, speed and acceleration.
	Calculate or estimate gradients of graphs and areas under graphs (including quadratic and other non-linear graphs), and interpret results in cases such as distance-time graphs, velocity-time graphs and graphs in financial contexts.
	Interpret the gradient at a point on a curve as the instantaneous rate of change.
	Identify and interpret roots, intercepts, turning points of quadratic functions graphically.
10	**EXPLORING FRACTIONS, DECIMALS AND PERCENTAGES**
Key Concepts	Change recurring decimals into their corresponding fractions and vice versa.
	Set up, solve and interpret the answers in growth and decay problems, including compound interest.
11	**SOLVING EQUATIONS AND INEQUALITIES III**
Key Concepts	Solve quadratic equations algebraically by factorising.
	Solve quadratic equations (including those that require rearrangement) algebraically by factorising.
	Find approximate solutions to quadratic equations using a graph.
	Deduce roots of quadratic functions algebraically.
12	**UNDERSTANDING RISK**
Key Concepts	Apply systematic listing strategies including use of the product rule for counting.
	Calculate and interpret conditional probabilities through representation using expected frequencies with two-way tables, tree diagrams and Venn diagrams.
13	**ANALYSING STATISTICS**
Key Concepts	Infer properties of populations or distributions from a sample, whilst knowing the limitations of sampling.
	Construct and interpret diagrams for grouped discrete data and continuous data, i.e., cumulative frequency graphs, and know their limitations.
	Interpret, analyse and compare the distributions of data sets from univariate empirical distributions through appropriate graphical representation involving discrete, continuous and grouped data, including box plots.
	Interpret, analyse and compare the distributions of data sets from univariate empirical distributions through appropriate measures of central tendency including quartiles and inter-quartile range.

14	**ALGEBRAIC PROFICIENCY: VISUALISING II**
Key Concepts	Use the form y = mx + c to identify perpendicular lines.
	Recognise and use the equation of a circle with centre at the origin.
	Find the equation of a tangent to a circle at a given point.
15	**MATHEMATICAL MOVEMENT II**
Key Concepts	Apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representation of vectors.