Y10 Higher SOW

Y10 Higher - HT1				
Chapters	**Learning Objectives:**	**R**	**A**	**G**
Decimal and the four operations	To carry out additions/ subtractions / multiplication / division (including problem solving)			
Order of operations	To use BIDMAS to carry out calculations			
LCM, HCF and prime numbers	Identify the LCM and HCF of two numbers by writing numbers as a product of prime factors			
Linear Equations	Distinguish between expressions, equations, formulae and identities.			
	Recap- Solve one and two step equations			
	Solve equations with unknown on both sides including brackets			
	Solve equations involving fractions			
	Set up equations from given information and then solve them.			
Formulae	Substitute numbers into formulae.			
	Change the subject of a formula			
Simultaneous equations	Solve two linear equations simultaneously using the elimination method			
	Solve two linear equations simultaneously using the substitution method method			
Linear graphs	To recognise and draw the graph of a linear equation using table of values with and without a calculator			
	Draw graphs using the gradient-intercept method.			
	Find the equation of a line, using its gradient and intercept.			
	Find the equation of a line given two points on the line.			
	Solve simultaneous linear equations using graphs.			
	Work out the equation of a linear graph that is parallel to another line and passes through a specific point.			
	Work out the equation of perpendicular lines			
	Find the equation of a tangent to a circle.			
Inequalities and regions	Solve a simple linear inequality and represent it on a number line.			
	Find regions that satisfy more than one graphical inequality.			

Y10 Higher - HT2				
Chapters	**Learning Objectives:**	**R**	**A**	**G**
Factorising and solving quadratics	Recognise expressions, equations, formulae and identities.			
	To expand two/three brackets			
	Recap - Factorise a quadratic expression of the form $x^2 + bx + c$ into two linear brackets.			
	Factorise a quadratic expression of the form $ax^2 + bx + c$ into two linear brackets ($a \neq 0$)			
	To recognise and use the difference of two squares			
	Solve quadratic equations by factorisation.			
	Solving quadratic equations using the quadratic formula			
	Solving quadratic equations by completing the square			
Non-Linear Graphs	To recap plotting quadratic and cubic graphs with / without a calculator			
	To solve quadratic / cubic equations graphically			
	Recognise exponential and reciprocal graphs.			
Quadratic Sequences	Find the nth term of a linear sequence.			
	Generate the terms of a quadratic sequence from the nth term.			
	Work out the nth term of a quadratic sequence.			

Y10 Higher - HT3				
Chapters	**Learning Objectives:**	**R**	**A**	**G**
Negative / Fractional Indices	Apply the rules of powers to negative indices			
	Apply the rules of powers to fractional Indices			
	Find reciprocals of numbers or fractions.			
Surds	How to estimate powers and roots of any given positive number.			
	Simplify and manipulate surds			
	Rationalise the denominator.			
	Solve problems involving surds			
Recurring decimals.	Recognise rational numbers, terminating decimals and recurring decimals.			
	Convert terminating decimals to fractions.			
	Convert between fractions and recurring decimals.			
Ratios	Write ratios in the form 1 : n or n : 1.			
	Compare ratios.			
	Find quantities using ratios.			
	Solve problems involving ratios including algebraic ratios			
	Solve complex problems involving ratios.			
Direct / Inverse proportion	Write and use equations to solve problems involving direct proportion. Including problems involving square and cubic proportionality			
	Write and use equations to solve problems involving inverse proportion.Including problems involving square and cubic			
	Use and recognise graphs showing direct/ inverse proportion.			

Y10 Higher - HT4				
Chapters	**Learning Objectives:**	**R**	**A**	**G**
Circles and Sectors	Review the circumference and area of a circle.			
	Review the arc length			
	Calculate the area and angle of a sector.			
Volume and surface area	Calculate the volume of a prism.			
	Calculate the volume and surface area of a cylinder.			
	Calculate the volume of a pyramid.			
	Calculate the volume and surface area of a cone/ frustum			
	Calculate the volume and surface area of a sphere.			
Distance / Velocity–time graphs	Interpret distance–time graphs			
	Read information from a velocity–time graph.			
	Work out the distance travelled from a velocity–time graph.			
	Work out the acceleration from a velocity–time graph.			
Rates of change	Draw a tangent at a point on a curve and use it to work out the gradient at a point on a curve.			
	Interpret the gradient at a point on a curve.			
Estimating area under a curve	Use areas of rectangles, triangles and trapeziums to estimate the area under a curve.			
	Interpret the meaning of the area under a curve.			

Y10 Higher - HT5				
Chapters	**Learning Objectives:**	**R**	**A**	**G**
Sets and Venn Diagrams	To understand set notations			
	To understand intersections/union including (A, Not A = A')			
	Use Venn diagrams to solve set questions.			
Probability	Work out the probability of two outcomes or events occurring at the same time ('and' and 'or' rules)			
	Use tree diagrams to work out the probability of combined events.			
	Work out the probability of combined events when the probabilities change after each event (without replacement).			
Histograms	Use Venn diagrams to solve probability questions.			
	Work out the number of choices, arrangements or outcomes when choosing from lists or sets.			
	Draw and interpret histograms where the bars are of equal width.			
	Draw and interpret histograms where the bars are of unequal width.			
	Estimate the median, quartiles and interquartile range from a histogram.			
Sampling	Understand and use different types of sampling.			

Y10 Higher - HT6				
Chapters	**Learning Objectives:**	**R**	**A**	**G**
Approximation and bounds	Estimate before calculating and round a calculation to give a reasonable answer.			
	Find the error interval or limits of accuracy of numbers that have been rounded to different degrees of accuracy.			
	Combine limits of two or more variables together to solve problems.			
Angles	Solving problems involving polygons			
	To solve problems involving alternate and corresponding angles. Including bearing problems			
Congruency and similiarity	Demonstrate that two triangles are congruent.			
	Recognise and show that two shapes are similar			
	Solve problems involving the area and volume of similar shapes.			
Constructions and loci	Draw nets of some 3D shapes / Identify a 3D shape from its net.			
	Construct the bisectors of lines and angles.			
	To construct triangles accurately (ASA, SSS, SAS,RHS)			
	Draw a locus for a given rule / Solve practical problems using loci			
	Construct and interpret plans and elevations of 3D shapes.			
Trigonometry	To use the sine rule / cosine rule / area of a triangle for non right angle triangle			
Review				