

## Curriculum Map – Mathematics Y10 Higher

Autumn Term				
Y10	<p><b>Topic Title:</b> Autumn Unit 1: Data collection, sampling, presenting, and analysing</p> <p><b>Big Question:</b> How do I interpret and represent data? How do I analyse data?</p>	<p><b>Topic Title:</b> Autumn Unit 2: Primes, factors and multiples.</p> <p><b>Big Question:</b> What is whole number theory? How can you find the HCF and LCM of 2 or more numbers?</p>	<p><b>Topic Title:</b> Autumn Unit 3: Fractions and decimals</p> <p><b>Big Question:</b> How do use the four rules involving fractions? How do I find a fraction of an amount? How do I express simple fractions as decimals? How do I solve division problems involving decimals?</p>	<p><b>Topic Title:</b> Autumn Unit 4: Algebraic manipulation</p> <p><b>Big Question:</b> What are and how do you use algebraic expressions? How do I recognise and use algebraic formulae?</p>
Links to NC	<p>Infer properties of populations or distributions from a sample, whilst knowing the limitations of sampling</p> <p>Interpret and construct tables and line graphs for time series data. Construct and interpret diagrams for grouped discrete data and continuous data, i.e. histograms with equal and unequal class intervals and cumulative frequency graphs, and know their appropriate use}</p>	<p>Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, HCF, LCM, prime factorisation, including using product notation</p>	<p>Work interchangeably with terminating decimals and their corresponding fractions. Change recurring decimals into their corresponding fractions and vice versa</p>	<p>Simplify and manipulate algebraic expressions (including those involving surds {and algebraic fractions}) by: Factorising quadratic expressions of the form <math>x^2 + bx + c</math> and <math>2ax^2 + bx + c</math>, including the difference of two squares.</p>
Assessments	CFU Histograms, cumulative frequency and box plots.	CFU HCF and LCM.	CFU Four rules with algebraic fractions.	CFU Expanding, factorising quadratics. Amended higher practice paper.

## Curriculum Map – Mathematics Y10 Higher

Autumn Term				
	<p><b>Topic Title:</b> Autumn Unit 5: Accuracy and rounding</p> <p><b>Big Question:</b> How do I approximate and estimate?</p>	<p><b>Topic Title:</b> Autumn Unit 6: Circles, spheres and pyramids</p> <p><b>Big Question:</b> What are perimeter calculations? How do I apply the area formula to 2d shapes? What is the difference between volume and surface area calculations?</p>	<p><b>Topic Title:</b> Autumn Unit 7: Pythagoras' theorem and trigonometry 1</p> <p><b>Big Question:</b> How do I use and apply the correct formula with triangle mensuration? How do I apply the three trigonometry ratios? How do I calculate exact trigonometric values?</p>	<p><b>Topic Title:</b> Autumn Unit 8: Proofs and formulae</p> <p><b>Big Question:</b> What are and how do you use algebraic expressions? How do I recognise and use algebraic formulae?</p>
Links to NC	Round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures]	Calculate arc lengths, angles and areas of sectors of circles Calculate surface areas and volumes of spheres, pyramids, cones and composite Solids	Apply Pythagoras' Theorem and trigonometric ratios to find angles and lengths in right-angled triangles and 3d shapes	Translate simple situations or procedures into algebraic expressions or formulae
Assessment	CFU Estimation	CFU Area, volume and surface area.	CFU Pythagoras' theorem and trigonometry.	CFU Algebraic formulae. Amended Higher Practice paper.

## Curriculum Map – Mathematics Y10 Higher

Spring Term				
Y10	<p><b>Topic Title:</b> Spring Unit 1: Construction and Loci</p> <p><b>Big Question:</b> How do I use a ruler and compass for constructions?</p>	<p><b>Topic Title:</b> Spring Unit 2: Geometric Proof</p> <p><b>Big Question:</b> How do I apply angle facts to a variety of problems?</p>	<p><b>Topic Title:</b> Year 10 Spring unit 3: Straight line graphs</p> <p><b>Big Question:</b> What do graphs of equations and functions look like?</p>	<p><b>Topic Title:</b> Year 10 Spring Unit 4: Graphs of equations and functions</p> <p><b>Big Question:</b> What do graphs of equations and functions look like?</p>
Links to NC	Derive and use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle)	Derive and use the sum of angles in a triangle and use it to deduce the angle sum any polygon, and to derive properties of regular polygons Solve problems involving parallel lines.	Use the form $y = mx + c$ to sketch equations of straight lines, identify parallel lines find the equation of the line through two given points, or through one point with a given gradient.	Use the form $y = mx + c$ to identify the solution set of inequalities in two variables and identify and find equations of perpendicular lines; Move freely between different numerical, algebraic, graphical and diagrammatic representations, including of linear, quadratic, reciprocal, {exponential and trigonometric} functions.
Assessment	CFU Constructions.	CFU Angles in parallel lines and polygons.	CFU Straight line graphs.	CFU Straight line graphs.

## Curriculum Map – Mathematics Y10 Higher

Spring Term					
	<p><b>Topic Title:</b> Spring Unit 5: Iteration</p> <p><b>Big Question:</b> How can I solve an equation using iteration?</p>	<p><b>Topic Title:</b> Spring Unit 6: Percentage Change</p> <p><b>Big Question:</b> How do I work out the percentage change of two or more numbers? How do I apply multipliers to growth and decay problems?</p>	<p><b>Topic Title:</b> Spring Unit 7: Algebraic solutions of equations</p> <p><b>Big Question:</b> How do I solve algebraic equations?</p>	<p><b>Topic Title:</b> Spring Unit 8: Ratio and proportion</p> <p><b>Big Question:</b> How do I link fractions with ratio? How do I solve problems involving proportionality?</p>	<p><b>Topic Title:</b> Spring Unit 9: Bivariate Data</p> <p><b>Big Question:</b> How do I analyse and interpret data?</p>
	Extend fluency with expressions and equations from key stage 3, to solve equations using iteration	Interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively Set up, solve and interpret the answers in growth and decay problems, including compound interest {and work with general iterative processes}.	Extend fluency with expressions and equations from key stage 3, to include quadratic equations, simultaneous equations	Understand that X is inversely proportional to Y is equivalent to X is proportional to 1/Y; {construct and} interpret equations that describe direct and inverse proportion Illustrate direct and inverse proportion	Use and interpret scatter graphs of bivariate data; recognise correlation and know that it does not indicate causation; draw estimated lines of best fit; make predictions; interpolate and extrapolate apparent trends whilst knowing the dangers of so doing.
Assessment	CFU Iteration.	CFU Percentage change.	CFU Algebraic equations.	CFU Ratio and proportion.	CFU Scatter graphs. Amended Higher Practice Paper.

## Curriculum Map – Mathematics Y10 Higher

Summer Term				
Y10	<p><b>Topic Title:</b> Summer Unit 1: Index notation</p> <p><b>Big Question:</b> How do I solve questions involving index laws?</p>	<p><b>Topic Title:</b> Summer Unit 2: Standard form</p> <p><b>Big Question:</b> What is and how do we use standard form? How do I calculate using Standard form?</p>	<p><b>Topic Title:</b> Summer Unit 3: Surds</p> <p><b>Big Question:</b> What are exact calculations?</p>	<p><b>Topic Title:</b> Summer Unit 4: Inequalities</p> <p><b>Big Question:</b> How do I solve algebraic equations? What are algebraic inequalities?</p>
Links to NC	Calculate with roots, and with integer {and fractional} indices	Calculate with numbers in standard form $A \cdot 10^n$ , where $1 \leq A < 10$ and $n$ is an integer	Simplify and manipulate algebraic expressions (including those involving surds {and algebraic fractions})	Rearrange and solve quadratic equations by factorising or completing the square. Solve linear inequalities in one {or two} variable{s}, {and quadratic inequalities in one variable}; represent the solution set on a number line, {using set notation and on a graph}
Assessments	CFU Index laws	CFU Standard form.	CFU Surds.	CFU Inequalities.

## Curriculum Map – Mathematics Y10 Higher

Summer Term				
Y10	<p><b>Topic Title:</b> Summer Unit 5: Compound Units</p> <p><b>Big Question:</b> How do I convert between different units and measurement? How do I use units and measurement for compound measurements?</p>	<p><b>Topic Title:</b> Summer Unit 6: 2D and 3D representations</p> <p><b>Big Question:</b> What are three-dimensional shapes? How do I use bearings and Scale Diagrams?</p>	<p><b>Topic Title:</b> Summer Unit 7: 2D and 3D representations</p> <p><b>Big Question:</b> How do I make area calculations using trigonometry? How do I identify and use the correct trigonometry formulae for non right angled triangles?</p>	<p><b>End of year exam preparation and reteach.</b></p>
Links to NC	Convert between related compound units (speed, rates of pay, prices, density, pressure) in numerical and algebraic contexts	Construct and interpret plans and elevations of 3D shapes	<p>Know and apply the sine rule, and cosine rule</p> <p>Know and apply to calculate the area formula for sides or angles of any triangle</p>	
Assessments	CFU Compound Units	CFU 2D and 3D representations	CFU 2D and 3D representations	