Core Concepts Maths

	Core Concepts	Components- Curriculum Themes								
			Year 7	Year 8	Year 9	Year 10		Year 11		Year 12	Year 13
						Higher	Foundation	Higher	Foundation		
Number	Types of Number	Autumn Term	• Place vale • 4 operations • 4 operations negatives • 4 operations decimals • BIDMAS • Factors, multiples and primes • Prime factors, HCF and LCM • Rounding and estimating	• Money in real life • Factors, multiples and primes	• 4 operations with decimals • Rounding • Estimation • Error of intervals • Bounds	• Prime Factor decomposition • HCF/LCM	• Prime Factor decomposition • HCF/LCM	• Error of intervals • Truncation • Bounds problems	• Error of intervals • Bounds		
		Spring Term									
		Summer Term		• Prime factor decomp • HCF/LCM • Rounding • Estimation							
	Percentages, Fractions and FDPR conversions	Autumn Term		• Wages and interest	• Compare and order FDP • Percentage change • Simple interest • Compound interest • Reverse percentages • Recurring decimals	• 4 operations with Fractions • Percentage Problems • Best buy Problems • Recurring decimals to fractions	• 4 operations with fractions • Fractions of amounts • Percentage of amounts • Percentage change • Interest • Percentage Problems • Reverse percentages				
		Spring Term	• Fractions of amounts • Percentages of amounts • FDP conversions	• 4 operations with fractions • Reciprocals • Compare and order fractions							
		Summer Term	• 4 operations with fractions								

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	Indices and Standad Form	Autumn Term	• Powers and roots • Surds • Converting Standard form		• Working with Standard form • Laws of indices • Fractional and negative indices	• Laws of indices • Fractional and negative indices • Using standard form • Surds • Rationalising the denominator	• Laws of indices • Working with standard form			• Surds • Indices • discrimanents	
		Spring Term									
		Summer Term		• Converting standard form • Calculating with standard form • Surds							
	Ratio and Proportion	Autumn Term		• Real life proportion • Using ratios				• Complex Ratio problems • Algebraic Proportion	• Ratio problems • Worded proportion problems • Exchange rates		
		Spring Term									
		Summer Term	• Simplifying ratios • Sharing into a ratio		• Ratio • Worded Proportion • Ratio and Fractions • Algebraic Proportion (H)						
	Algebraic Manipulation	Autumn Term	• Simplifying expressions • Substitution • Expand and factorise	• Algebraic Indices • Expand and factorise		• Expanding triple brackets • Factorising quadratics	• Expanding quadratics • Factorising quadratic			• Exploring quadratics • Logerithems	
		Spring Term			• Expanding • Factorising	• Solve Quadratics – all ways • Completing the square				• Trig identities • Binomial expansion • Proof by deduction • Proof by exhaustion • Proof by counter examples	• Advanced binomial Expansion • Advanced Proof
		Summer Term									

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	Solving and Rearranging	Autumn Term	• Solving equations	• Changing the subject				• Algebraic Proof • Solving quadratics • Complex rearranging • Simultaneous Equations • Quadratic simultaneous question	• Solving with unknowns on both sides • Rearranging • Simultaneous Equations	• Solving with surds • rearranging with surds • Logerithems • Simultaneous Equations • Factorising Theorem	
		Spring Term		• Solve equations • Form and solve	• Solving equations • Rearranging • Forming and solving • Solving quadratics – factorising		• Solving all Linear equations	• Iteration • Functions			• Numerical methods • Parametric Equations
		Summer Term			• Simultaneous Equations (H)						
	Sequences and Series	Autumn Term	• Continuing sequences								
		Spring Term			• Linear Nth Term • Fibonacci • Geometric • Quadratic Nth term	• Quadratic Nth Term	• Linear Nth Term • Recognise other sequences				• Geometric and Arithmetic • reccurrence and relations
		Summer Term									

Core Concepts Maths

Alge	Graphs and Inequalities	Autumn Term	• Inequalities on a numberline • Solving inequalities	• Substitution • Plotting graphs				• Graphing linear inequities • Graphing quadratic inequalities	• Solving and representing inequalities	• Graphing linear inequities • Graphing quadratic inequalities • Turning points Parallel and perpendicular lines • Problem Solving • Logerithems • Linear and Quadratic Inequalities	
		Spring Term			• Midpoints • Linear graphs • Equations of straight lines • Plot quadratics • Solving quadratics- using the graph • Roots and turning points	• Equations of parallel lines • Equations of perpendicular lines • Plotting graphs of all functions • Sketching quadratics	• Plotting linear Graphs • Midpoints • Using y=mx+c	• Sketching graphs • Trig Graphs • Transformations of graphs • Equations of a circles • Tangents to a circle		• Equations of circles • Solving problems involving circles	
		Summer Term	• Coordinates		• Inequities on a number line • Solving inequalities • Graphing inequalities (H)						
	Calculus	Autumn Term								• Differentiations • Rates of change • Gradients of tangents and normals • Increase and Decreasing functions	
		Spring Term								• Derivatives • Second derivatives • stationary points • Integration • Area under a curve	• Differential Equations
		Summer Term								• Harder Differentiation • The Key Rules • implicit Differentiation • Harder Integration techniques	

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Geometry	Shape and Space	Autumn Term		• Volume • Surface area	• Area • Circles				
		Spring Term	• Properties of shapes • Area and perimeter	• Perimeter • Circle - circumference	• Volume • Surface Area	• Volume of Pyramids, Cones and Spheres • Volume of Frustums • Surface Area of pyramids, cones and spheres • Surface area of Frustums • Similarity • Congruence	• Area of 2D shapes • Area of compound shapes • Circles		
		Summer Term			• Arcs and Sectors (H)	• Circles • Arcs and sectors	• Volume • Surfaces area		
	Units and Compound Measures	Autumn Term		• Compound Measures	• Converting units • Converting area and volume				
		Spring Term	• Converting units		• SDT • DMV • PFA • Distance time graphs • Speed time graphs				
		Summer Term				• Compound measure • Distance time graphs • Speed time graphs • Estimating the area under curves	• Volume • Surfaces area		

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	Angles, Constructions & Transformations	Autumn Term				• Transformations • Negative enlargements • Invarient points	• Transformations			• Tranformations of graphs and functions	
		Spring Term	• Construction and Loci • Drawing and measuring angles • Basic angle facts	• Basic angle facts • Angles in parallel lines • Angles in Polygons				• Vectors		• Vectors	• 3D Vectors
		Summer Term		• Plans and elevations • Constructions • Transformations	• Angles in parallel lines • Angles in Polygons • Bearings	• Angles in parallel lines • Angles in polygons • Bearings • Bearings with Trig • Circle Theorems	• Angles in parallel lines • Angles in Polygons • Bearings • Bearings with pythag and trig			• Radians • Arc Length and Sectors	
	Pythagoras and Trigonometry	Autumn Term				• Pythagoras • Trigonometry • Exact trig values • 3D pythag and trig	• Pythagoras			• Sine and Cosine Rule • Area of a triangle • Problem Solving with advanced trig	
		Spring Term			• Trigonometry (H) • Pythagoras (H)						• Double angle formula • Harmonic form and modelling
		Summer Term		• Pythagoras (H)	• Pythagoras (F)	• Sine and Cosine Rule • Area of a triangle	• Pythagoras • Trigonometry			• Reciprocals and Trig Functions • Inverse Trig Functions	

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Probability	Probability	Autumn Term			• Basic probability • Two way tables • Venn diagrams • Set notation • Probability tree						• Mutually exclusive • Independent Events • Tree Digrams • Venn Diagrams • Conditional Probability Formula • Discreate Probability and distributions • Binomial Distributions • Normal Distributions • Hypothesis Testing
		Spring Term				• Probability from statistical diagrams • Product rule for counting	• Using probability • Probability from statistical diagrams • Probability Trees				
		Summer Term	• Writing and representing probability								
Statistics	Statistics	Autumn Term						• Histograms • Histograms linking to other statistical diagrams	• Pie charts • Scatter Graphs • Time series graphs.		• Sampling • Data Analysis and Representing • Correlation and regression • Hypothesis Testing
		Spring Term				• Averages from grouped frequency • Cumulative frequency • Boxplots • Quartiles • Compare distributions • Capture Recapture	• Averages • Averages from tables • Averages from diagrams • Using statistical diagrams				
		Summer Term	• Calculating averages • Representing data on graphs		• Averages • Averages from a table (H) • Frequency Polygons • Scatter Graphs • Stem and Leaf • Cumulative Frequency (H)						

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Mechanics	Mechanics	Autumn Term		• Quantities and Units • Constant Acceleration • Variable Acceleration • Projectiles • Statics • Dynamics • Moments
		Spring Term		
		Summer Term		