Curriculum C	Content Map	р	Subject: Year 13 Maths										
Mon	nth		September	Term 1 October	November	December	January	February	erm 2 March	April	May	Term 3 June	July
			3 Sequences and Series	5 Radians	7 Trigonometry and Modelling	9 Differentiation	11 Integration	1 Regression, correlation and hypothesis testing	4 Moments	7 Applications of Forces	Revision		
	J		4 Binomial Expansion	6 Trigonometric Functions	8 Parametric Equations	10 Numerical Methods	12 Vectors		5 Forces and Friction	8 Further Kinematics			
	Nork		PURE MATHEMATICS	PURE MATHEMATICS	PURE MATHEMATICS		PURE MATHEMATICS	2 Conditional Probability	6 Projectiles	STATISTICS			
	s of					PURE MATHEMATICS		3 Normal Distribution	STATISTICS				
	Units								SIAISIKS				
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			 "Understand and use the laws of indices for all rational exponents" 	 "Solve simultaneous equations in two variables by elimination and by substitution, 	 "Understand and use the equation of a straight line; gradient conditions for two 	"Understand and use the binomial expansion for positive integer n; the notations n! and	1 & 2 "Understand and use the definitions of sine, cosine and tangent for all arguments; the sine and	"Understand and use the derivative of f(x) as the gradient of the tangent to the graph of y	Calculus"	"Understand and use the terms 'population' and 'sample'	"Interpret diagrams for single-variable data, including understanding that area in a histogram		
			"Use and manipulate surds, including rationalising the denominator"	including one linear and one quadratic equation"	straight lines to be parallel or perpendicular" "Be able to use straight line models in a	nCr; link to binomial probabilities"	cosine rules; the area of a triangle in the form 1/2absinC"		"Integrate xn (excluding n = -1), and related sums, differences and constant multiples"	"Use samples to make informal inferences about the population"	represents frequency" "Connect to probability distributions"		
			"Manipulate polynomials algebraically,		variety of contexts"		"Understand and use the sine, cosine and tangent functions; their graphs, symmetries and periodicity"	of change; sketching the gradient function for	"Evaluate definite integrals; use a definite integral to find the area under a curve"	"Understand and use sampling techniques,	"Recognise and interpret possible outliers in data sets and statistical diagrams"		
			including expanding brackets and collecting like terms, factorisation and simple algebraic	single variable and interpret such inequalities graphically, including inequalities with	2. "Understand and use the coordinate		"Understand and use tan = sin/cos" "Understand and use sin2 + cos2 = 1"	a given curve; second derivatives; differentiation from first principles for small	"Know and use the function x a and its graph,	including simple random sampling and opportunity sampling"	"Select or critique data presentation techniques in the context of a statistical problem"		
			division; use of the factor theorem"	brackets and fractions" "Represent linear and quadratic inequalities	geometry of the circle including using the equation of a circle; completing the square to		*Solve simple trigonometric equations in a given	positive integer powers of	where a is positive"	"Select or critique sampling techniques in the context of solving a statistical problem,	"Be able to clean data, including dealing with missing		
			2. "Work with quadratic functions and their	graphically"	find the centre and radius of a circle; use of		interval, including quadratic equations in sin, cos and tan and equations involving multiples of the	"Understand and use the second derivative	"Know and use the function ex and its graph" "Know that the gradient of ekx is equal to keke and	including understanding that different	data, errors and outliers*		
	¥		graphs; the discriminant of a quadratic function, including the conditions for real and	2. "Understand and use graphs of functions;	the following properties: the angle in a semicircle is a right angle		unknown angle"	as the rate of change of gradient"	hence understand why the exponential model is suitable in many applications"	samples can lead to different conclusions about the population"	"Interpret scatter diagrams and regression lines for bivariate data, including recognition of scatter		
	onte		repeated roots; completing the square; solution of quadratic equations including	sketch curves defined by simple equations including polynomials, interpret algebraic	the perpendicular from the centre to a chord bisects the chord		"Use vectors in two dimensions" "Calculate the magnitude and direction of a vector	"Differentiate xn, for rational values of n, and related constant multiples, sums and	"Know and use the definition of loga x as the inverse of ax , where a is positive and x ≥ 0"	2. "Interpret measures of central tendency	diagrams which include distinct sections of the population (calculations involving regression lines		
) e		solving quadratic equations in a function of the unknown"	solution of equations graphically; use	the radius of a circle at a given point on its circumference is perpendicular to the		and convert between component form and magnitude/direction form"	differences"	"Know and use the functionIn x and its graph" "Know and use In x as the inverse function of ex"	and variation, extending to standard	are excluded)" "Understand informal interpretation of correlation"		
	& A-Le		the diknown	intersection points of graphs to solve equations"	tangent to the circle at that point		"Add vectors diagrammatically and perform the algebraic operations of vector addition and	"Apply differentiation to find gradients,	"Understand and use the laws of logarithms" "Solve equations of the form ax=b"	"Be able to calculate standard deviation,	"Understand that correlation does not imply		
	AS &			"Understand the effect of simple transformations on the graph of y =	3. "Understand and use the structure of		multiplication by scalars, and understand their geometrical interpretations"	tangents and normals, maxima and minima and stationary points"	"Use logarithmic graphs to estimate parameters in	including from summary statistics"	"Understand and use mutually exclusive and		
	,			f(x)including sketching associated graphs"	mathematical proof, proceeding from given assumptions through a series of logical steps		"Understand and use position vectors; calculate the	"Identify where functions are increasing or	relationships, given data for x and y" "Understand and use exponential growth and		independent events when calculating probabilities"		
					to a conclusion; use methods of proof,		distance between two points represented by position vectors"	decreasing"	decay; use in modelling (examples may include the use of e in continuous compound interest,		"Link to discrete and continuous distributions"		
					including proof by deduction, proof by exhaustion"		"Use vectors to solve problems in pure mathematic and in context, including forces"	s	radioactive decay, drug concentration decay, exponential growth as a model for population		 "Understand and use simple, discrete probability distributions (calculation of mean and variance of 		
					"Disproof by counter example"				growth); consideration of limitations and refinements of exponential models*		discrete random variables is excluded), including the binomial distribution, as a model: calculate		
											probabilities using the binomial distribution"		
			Index Laws Expanding Brackets	Simultaneous Equations, including quadratics and on a graph	Equations of straight lines Parallel and Perpendicular lines	Pascal's Triangle Factorial notation	1. Cosine Rule Sine Rule	Gradients of curves Finding the derivative	Integrating xn Indefinite integrals	Populations and samples Sampling, including non-random	1. Outliers Box Plots		
			Factorsing Negative and Fractional Indices	Inequalities, including quadratic and on a	Midpoints and perpendicular bisectors	Binomial expansion Solving binomial problems	Area of Triangle (sine rule)	Differentiating xn	Finding functions Definite integrals	Types of data	Cumulative Frequency Histograms		
Ĕ			Negative and Fractional Indices Surds, including rationalising denominator	graph Regions of inequalities	Equation of a circle	Solving binomial problems Binomial estimation	Graphs of sine, cosine and tangent, including transformation of graphs	Differentiating quadratics Differentiating functions with two or more	Areas under curves and the x-axis	2. Measures of central tendency and spread	-		
.0	98		Solving quadratics, including completing	2. Cubic Graphs	Tangents and Chords Circles and triangles		2. Angles in quadrants	terms Gradients, tangents and normal	Areas between curves and lines	Variance and standard deviation Coding	2. Correlation Linear Regression		
ansmissi	Med		the square Functions	Quartic Graphs Reciprocal Graphs			Trigonometric identities	Increasing and decreasing functions	2. Exponential functions	-			
::	Knov	The What!	Quadratic graphs	Translating Graphs	Algebraic fractions Dividing polynomials		Trigonometric equations	Second order derivatives Stationary points	y = ex Logarithms, including laws of logarithms		Calculating probabilities Venn diagrams		
Ι Ε	tive	me what!	The discriminant Modelling with quadratics	Sketching Graphs Transforming Functions	Factor Theorem Proof		Vectors, including representing vectors Magnitude and direction	Sketching gradient functions	Solving equations using logarithms Natural logarithms		Mutually exclusive and independent events Tree diagrams		
15	bstar						Position vectors		Logarithms and non-linear data		Probability distributions		
ıπ	Sul										Binomial distributions		
70											Cumulative probabilities		
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Cultural			Students will be encouraged to sketch graphs which is a key skill for them to develop.	These topics are also very much graph based		One of the skills key to this topic is estimation. Students will need to understand		Students are back to graphs and sketching			Graphs are still important in these topics and students will need to apply the skills they		
	_		Students will also complete practice	sketch and manipulate and amend graphs	they will continue to develop their skills in	how binomial expansion can be used as the	encouraged to develop their skills of	differentiation.	about modelling real world situations using logarithmics and exponentials.	data in order to help with understanding this	have already accumulated.		
	edge		questions and past exam questions. Students will also be encouraged to start	Students will complete practice questions and also past exam questions.	this area. Students will also focus on the skill of proof and how to best present proofs in	basis of estimation. Students will complete practice questions	sketching and labelling geometric shapes, angles and graphs.	Students will learn the skills needed in order to find and sketch graphs of differentials will		content. Students will also further develop their graphing skills - this time with a focus on			
	No.		developing their own questions and also mark schemes.	Students will also be encouraged to create and develop their own questions on these	order to convey clarity Students will complete practice questions	and also past exam questions. Students will also be encouraged to create	Students will complete practice questions and also past exam questions.	need to relate these to gradients. Students will complete practice questions	them and to find gradients of tangents	scatter graphs and statistical analysis.	also some nice probability applications that can form the basis of discussions and short		
	Ž,	The How!	mark scriemes.	topics and link them to the previous topics.	and also past exam questions.	and develop their own questions on these	Students will also be encouraged to create	and also past exam questions.		with past exam questions, mark schemes and	trials in lessons.		
	ii d				Students will also be encouraged to create and develop their own questions on these	topics and link them to the previous topics. Students will also need to start critiquing the	and develop their own questions on these topics and link them to the previous topics.	Students will also be encouraged to create and develop their own questions on these		examiners reports. Students should also continue to develop and	Students will still need to work through I problems on these topics. They should still		
	Disc				topics and link them to the previous topics.	questions that other students have made.		topics and link them to the previous topics.		share their own creations.	be developing and sharing ideas		
			1. Builds from KS4:	1. Builds from KS4:	1. Builds from KS4:	Builds from KS4:	Builds from KS4:	Builds from KS4:	Builds from KS4:	1. Builds from KS4:	1. Builds from KS4:		
			Indices Expanding and Factorising	Simultaneous Equations Inequalities	y=mx+c	Expanding and factorising Sequences	Cosine Rule Sine Rule	Quadratic graphs	Areas on graphs Further develops in Y13:	Sampling Types of Data	Cumulative Frequency Box Plots		
			Surds	Further develops in Y13:	2. Builds from KS4:		Area of triangle (sine rule)	Further develops in Y13:	Further integration		Histograms		
			Further develops in Y13: Algebraic Methods	Differentiation and Integration	Circle theorems Further develops in Y13:	Further develops in Y13: Binomial expansion, including partial fractions	Graphs of sine, cosine and tangent Further develops in Y13:	Differentiating sin and cos Differentiating exponentials and logarithms	2. Builds from KS4:	Builds from KS4: Averages and Range	2. Builds from KS4:		
	3	io i	Proof Binomial Expansion	Builds from KS4: Cubic and Reciprocal Graphs	Radians		Trigonometric functions Trigonometry and modelling	Chain rule Product rule	Solving equations	Further develops in Y13: Normal distribution	Scatter Graphs Further develops in Y13:		
	(Flov	tens	2. Builds from KS4:	Sketching Graphs Furthers develops in Y13:	Builds from KS4: Algebraic fractions		2. Builds from KS4:	Quotient rule Parametric differentiation			Measuring correlation Hypothesis testing for correlation		
	cing	8	Solving quadratics	Functions and Graphs	Proof		Trigonometry in right-angled triangles	Implicit differentiation					
	dne	ieval	Quadratic graphs Further develops in Y13:		Further develops in Y13: Algebraic methods		Further develops in Y13: Trigonometric functions	Using second derivatives Rates of change			Builds from KS4: Calculating Probability		
	Š	Retr	Functions and graphs				Trigonometry and modelling				Venn Diagrams Mutually Exclusive Events		
							3. Builds from KS4:				Tree Diagrams		
							Column vectors Further develops in Y13:				Further develops in Y13: Conditional probability		
							Vectors in 3D				4. Further develops in Y13:		
			Regular End of unit assessments	End of unit assessments using the Pearson	AP1 Assessment - Whole School Data	End of unit and reflection on the AP1	End of unit assessments using the Pearson	End of unit assessments using the Pearson	AP2 Assessment - Whole School Data	End of unit and reflection on the AP2	Normal distribution End of unit assessments using the Pearson		
	imative issment			Active learn resources	Collection	assessment. Past exam questions to fill	active learn resources	active learn resources	Collection	assessment. Past exam questions to fill	active learn resources		
	mma					knowledge gaps for the AP3 should be used for AfL in the lessons			Review Exercise 3	knowledge gaps for the AP3 should be used for AfL in the lessons			
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	e e												
Personal Empowerment	Virtue		Friendliness & Civility	Justice & Truthfulness	Courage	Generosity	Gratitude	Good Speech	Good Temper & Humour	Self-I	Mastery		
		The opportunity to	Students will demonstrate friendlinger d	Students will look at how graphs and co-lo-	Students will need to be brown in terms of	Students should be generally with their time	Students should be taught about the ward of	f This is one of the tonics that students find	Tackling integration for the first time. It will	Students will have come chilly for data	This is an opportunity for students to master		
	e e	reflect, think deeply and	civility as they help each other to revise and	can be manipulated to hide the 'truth'	tackling new topics. They should be	in order to support each other both	early mathematicians and scientrists and	This is one of the topics that students find tircky. They should be encouraged to	be important for students to demonstrate	collection from GCSE. This will be an	their understanding of the different ways in		
	to Virtu	critically about an issue.	improve on their algebraic knowledge from KS4.		they are making in order to deepen their	academically and emotionally around the AP1 assessment period	the work that these pioneers have done to	demonstrate good speech and be open about how they are finding the topic and to share	tricky topic when first introduced and	opportunity for the students to focus on mastery of this skill during work on statistics			
	k to				understanding and the understanind of others		benefit us and humanity.	ideas on how to tackle problems.	students will need to remain open minded		students self mastery of these concepts		
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Preparation for Work	Sk≡	sı	Listening	Leadership	Problem-Solving	Creativity	Staying Positive	Speaking	Staying Positive	Almir	ng High		
		s skil.	Students will need to listen carefully to	Students will lead in their own learning ~	These topics naturally lend themselves to the	Students should be encouraged to create	When tackling some of the newer concentr	Students whould be encouraged to speak	Matching well with the virtue of good	Students will need to reflect carefully on the	Students will need to focus on revision for		
	=	rable	understand how their previous learning will	they build upon their previous KS4 learning to	skill of problem solving and their will be	their own questions based on given	students should stay positive in order to be	through problems and share solutions to the	temper, staying positive will be important	AP2 exam results and use these as the basis	the AP3 assessment which will be taking		
oar ✓	to Skill	nsfe	be stretched and challenge in algebra. Additionally, there is new content in	expand into this Y12 AS content	specific problem based questions in these topics for the students to try. These are	prarmeters and mark schemes.	resilient and complete longer problems	rest of the group in order to build their confidence in the skill of speaking.	when tackling the more complex problems and past exam questions	to aim high in order to meet/exceed their	place during the next few weeks. Past exam papers and model soultions should be made		
re d	Link t	55	quadratics that will be challenging if students do not listen.		denoted P in the text books					target grades for the next round of assessments.	available for students to help develop their exam skills.		
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Preparation for Citizenship	C &	s,	Social	Social Moral									
	SMSC & British Values	anss).	Rule of Law	Democracy									
	S.	rent	Students will use their social skills to work	Students will use their social skills as they									
	Value	on ct	together in groups and pairs to develop their understanding.	complete paired and group activities. Students will look at the moral repercussions									
	tish /	ions	_	of manipulating graphs and data.									
	S Bri	ujdo.		Students will demonstrate democracy as they	,								
	ASC &	Bujdi	order to move past the first module and	wortk together to debate, discuss and make decisions about the kind of equation solving									
1 -	to SA	evelc	A-Level course.	rules to use or graphs to draw									
	ž	٥											