	CURIOSIT	Y	COMPASSIO	N	COURAGE	
N N N N N N N N N N N N N N	 binomial theorem Maths Genie Videos Pure Chapter 5 – Trigonometry (Radians and small angles) Maths Genie Videos Applied Chapter 1 – Regression and correlation Maths Genie Videos 	 Pure Chapter 8 – Parametric Equations Maths Genie Videos Pure Chapter 9 – Differentiation Maths Genie Videos Pure Chapter 6 – Trigonometry (secant, cosecant and cotangent) Maths Genie Videos Pure Chapter 7 – Trigonometry (Compound and double angle formulae) Maths Genie Videos Pure Chapter 12 – Vectors (3D) Maths Genie Videos Applied Chapter 2 – Conditional probability Maths Genie Videos Applied Chapter 5 – Friction and forces Maths Genie Videos 	 Pure Chapter 10 – Numerical methods Maths Genie Videos Applied Chapter 3 – The normal distribution Maths Genie Videos Applied Chapter 6 – Applications of kinematics (Projectiles) Maths Genie Videos Applied Chapter 7 – Applications of forces Maths Genie Videos 	 Pure Chapter 11 – Integration Maths Genie Videos Applied Chapter 8 – Further kinematics Maths Genie Videos 	Revision	Exams



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Curriculum overview

Subject	Mathematics	Year group	13				
Vision statement:	At Landau Forte our curriculum exists to ensure all students regardless of background and ability have the opportunity to unlock their potential. We are committed to students being challenged from their previous key stage learning experiences. Our broad and balanced curriculum is ambitious, coherently planned and sequenced, and will provide the platform for preparing students with the foundations for examination success.						
	Our Curriculum Intent has been informed by a wide variety of researchers and is steep our curriculum to empower all learners creating a pathway to success in university, the		Counsell summarises the aspiration of				
	'A curriculum exists to change the pupil, to give the pupil new power. One acid test for to clamber into the discourse and practices of educated people, so that they gain powe		wer attaining or disadvantaged pupils				
	As well as excellent academic success we aim to ensure our students leave us as polite and Curiosity are currently being embedded throughout our curriculum offer to ensure						
Curriculum intent:	All students acquire the mathematical life skills necessary for the world of work, no mathematical students can achieve in Maths. Students will be taught to have a firm understanding of number bonds and be confide Students will be stretched and challenged through problem solving tasks to develop restudents are encouraged to show courage through attempting questions in environmed judgmental when questions are answered incorrectly. Students are also encouraged to real life applications of the Maths that they are learning. This will be achieved by staff working together in planning lessons that allow ALL stude Common lesson planning formats; Expert knowledge of the subject; Differentiated mathematical use of AfL to assess progress in a lesson; Regular use of formal marking and fe Regular summative assessments to ensure appropriate progress and intervention.	nt in using non-calculator strategies for so esilience. ent where other students show compassic o show curiosity through asking questions ents to achieve/ exceed their potential thr terial;	lving problems. In through a culture of being non- and taking a genuine interest in the				
Threshold Concepts (TCs):	TC1 Algebraic manipulation - This concept involves recognising mathematical propertion TC2 Number sense - This concept involves understanding the number system and how TC3 Shape facts - This concept involves recognising the names and properties of geom TC4 Multiplicative reasoning - This concept involves using ratio and proportion and un TC5 Representing and interpreting data - This concept involves interpreting, manipular TC6 Calculator skills - This concept involves fluent application of mathematical operation TC7 Understanding and calculating risk - This concept involves knowing the rules of pro-	they are used in a wide variety of mather etry shapes and angles. derstanding of reciprocals in real world ap ting and presenting data in various ways. ons on a scientific calculator	natical ways				



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QEMS

KS4 National		or mathematics aims to ensu		and a start fragment in the set		
Curriculum summary:	pupils develop of reason mathem using mathemat can solve proble problems into a Mathematics is an interco for key stage 4 is organise learning from key stage 3	conceptual understanding an atically by following a line of tical language ems by applying their mather series of simpler steps and p onnected subject in which pu ed into apparently distinct do	d the ability to recall and ap enquiry, conjecturing relation natics to a variety of routine persevering in seeking solution pils need to be able to move omains, but pupils should de nathematical reasoning and	ply knowledge rapidly and ac onships and generalisations, and non-routine problems v ons. e fluently between represent velop and consolidate conne competence in solving incre	vith increasingly complex prol ccurately. and developing an argument, with increasing sophistication, ations of mathematical ideas. ctions across mathematical id asingly sophisticated problem	justification or proof including breaking down The programme of study leas. They should build on
Learner skills:	Critical thinking	Organisation	Collaboration	Adaptability	Oracy	Self-quizzing
	CRITICAL THINKING	ORGANISATION	COLLABORATION	ADAPTABILITY	ORACY	SELF QUIZZING
	Term 1 Aug-Oct	Term 2 Nov-Dec	Term 3 Jan-Feb	Term 4 Mar-Apr	Term 5 Apr-May	Term 6 Jun-Jul
The Big Question						
Big picture questions:	How do I model with functions? What is a series? How can I apply the binomial theorem?	What is meant by a parametric equation? How do I differentiate more complex functions?	What numerical methods can I use to solve problems? How can I apply the normal distribution to problems?	How do I apply integration? How can I use calculus to solve acceleration problems?		



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Sompassio	How can I apply trigonometry to more	How can I apply trigonometry to more	How do I apply kinematic knowledge to		
	complex problems? How can I use	complex problems? How do l use vectors in	problems involving projectiles?		
	hypothesis testing when the correlation is 0?	3D? What is meant by	How do I solve problems with particles?		
	What is meant by the centre of mass?	conditional probability?			
		How can I resolve forces when working with friction?			
Content	TC1 Algebraic	TC1 Algebraic	TC1 Algebraic	TC1 Algebraic	Revision for exams
(Linked to TCs):	manipulation	manipulation	manipulation	manipulation	
	TC3 Shape facts	TC3 Shape facts	TC2 Number sense	TC6 Calculator skills	
	TC5 Representing and	TC5 Representing and	TC5 Representing and		
	interpreting data	interpreting data	interpreting data	Integration	
	TC6 Calculator skills	TC6 Calculator skills	TC6 Calculator skills	Integrating xn (including	
	TC7 Understanding and			when $n = -1$),	
	calculating risk	Parametric equations Definition and	Numerical methods Location of roots	exponentials and trigonometric functions.	
		converting between	Solving by iterative	Integrating functions	
	Functions & Graphs	parametric and Cartesian	methods (knowledge of	defined parametrically.	
	Modulus function	forms	'staircase and cobweb'	Using the reverse of	
		Curve sketching and	diagrams)	differentiation, and using	
	Composite and inverse functions	modelling	Newton-Raphson	trigonometric identities	
	Transformations		method	to manipulate integrals	
		Differentiation	Problem solving	Integration by	
	Modelling with functions*	Differentiating sin x and		substitution	
		cos x from first principles	The Normal distribution	Integration by parts	
	examples may be	Differentiating	Understand and use the	Use of partial fractions	
	Trigonometric, exponential, reciprocal	exponentials and	Normal distribution	Areas under graphs or	
	etc.	logarithms Differentiating products,	Use the Normal distribution as an	between two curves, including understanding	
		quotients, implicit and	approximation to the	the area is the limit of a	
		parametric functions.	binomial distribution	sum (using sigma	
	1	parametric functions.			l



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Series and sequencesArithmetic and geometric progressions (proofs of 'sum problems' (including growth and kinematics')Selecting the appropriate istitical hypothesisnotation.(proofs of 'sum formulae')Rates of change of gradient, inflectionsStatistical hypothesis testing for the mean of problems' (including growth and kinematics)Trigonometry inverse trigonometrical functions, inverse trigonometryApplications of kinematics: Projectiles Solving problems' (inverse trigonometrical functions, inverse trigonometryApplications of kinematics involving particles projected at an angle Derive formulae factorsFurther kinematics Compound* and double particles (quations of motion in 2D; the i, jsystem)Further kinematics Constant acceleration (duating kinowich particles projected at an angle Derive formulae factors)Further kinematics Compound* and double aparticle (including groemetric particle (including ignoblems in correlationFurther kinematics Compound* and double aparticle (including ligder problems in correlationFurther kinematics Constant acceleration (use of calculus and finding vectorsRegression and correlation correlationVectors (3D) Use of vectors in three dimensions; knowledge of column vectors and i, j and k unit vectorsVectors (3D) Use of vectors in three dimensions; knowledge of column vectors and i, j and k unit vectorsProbabilityMoments: Forces' turning effect Proces at any angle Resolving forcesProbability CombilityUsing set notation for probabilityInditional probability CombilityInditional					COMPAS
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in probability	Resolving forces	•			
		in probability			



COMPASSION



MPASS	Centre of mass				Mp
		Friction and Forces Friction forces (including coefficient of friction μ)			
(ey vocabulary:	Function, mapping, domain, range, modulus, transformation,	Parametric, Cartesian, convert, parameter t, identity, eliminate,	Roots, continuous, function, positive, negative, converge,	Integral, inverse, differential, coefficient, index, power, negative,	
	to one, many to one, mappings, reflect,	substitute, circle, hyperbola, parabola, ellipse, domain,	diverge, interval, derivative, tangent, chord, iteration,	reciprocal, natural logarithm, coefficient, exponential, identity, sin,	
	translate, stretch. Sequence, series, finite,	modelling, differential, integral, area.	Newton-Raphson, staircase, cobweb, trapezium rule.	cos, tan, sec, cosec, cot, parametric, definite integral, integrand, limit,	
	infinite, summation notation, ∑(sigma), periodicity, convergent,	Derivative, tangent, normal, turning point, stationary point,	Binomial, discrete distribution, discrete	indefinite integral, constant of integration, trapezium, substitution,	
	divergent, natural numbers, arithmetic series, arithmetic	maximum, minimum, inflexion, implicit, differential equation,	random variable, uniform, cumulative probabilities Normal,	by parts, area, differential equation, first order, separating	
	progression (AP), common difference, geometric series,	rate of change, product, quotient, first derivative, second derivative,	mean, variance, continuous distribution, histogram, inflection,	variables, initial conditions, general solution.	
	geometric progression (GP), common ratio, nnth term, sum to nn	increasing function, decreasing function.	appropriate probability distribution.	Distance, displacement, speed, velocity, constant	
	terms, sum to infinity $(S\infty)(S\infty)$, limit.	Pythagoras, Pythagorean triple, right-angled triangle, opposite,	Projectile, range, vertical, horizontal, component,	acceleration, constant force, variable force, variable acceleration,	
	Pythagoras, Pythagorean triple, right-angled triangle, opposite,	adjacent, hypotenuse, trigonometry, sine, cosine, tangent, secant,	acceleration, gravity, initial velocity, vector, angle of projection,	retardation, deceleration, initial (<i>t</i> t = 0), stationary (speed =	
	adjacent, hypotenuse, trigonometry, sine, cosine, tangent, secant,	cosecant, cotangent, SOHCAHTOA, exact, symmetry, periodicity,	position, trajectory, parabola.	0), at rest (speed = 0), instantaneously,	



COMPASSION



ter of					COMPASSION
292 - 292	cosecant, cotangent,	identity, equation,	Force, resultant,	differentiate, integrate,	
	SOHCAHTOA, exact,	interval, quadrant,	component, resolving,	turning point.	
	symmetry, periodicity,	degree, radian, circular	plane, parallel,		
	identity, equation,	measure, infinity,	perpendicular, weight,		
	interval, quadrant,	asymptote, small angles,	tension, thrust, friction,		
	degree, radian, circular	approximation, identity.	air resistance, reaction,		
	measure, infinity,		driving force, braking		
	asymptote, small angles,	Vector, scalar, column,	force, force diagram,		
	approximation, identity.	3D coordinates, vertices,	equilibrium, inextensible,		
		Cartesian, i, j, k,	light, negligible, particle,		
	Binomial, expansion,	magnitude, origin,	rough, smooth, incline,		
	theorem, integer,	distance, direction,	uniform, friction,		
	rational, power, index,	angle, position vector,	coefficient of friction,		
	coefficient, validity,	unit vector, vector	concurrent, coplanar.		
	modulus, factorial,	addition/subtraction.			
	nCrnCr, combinations,				
	Pascal's triangle, partial	Sample space, exclusive			
	fractions, approximation,	event, complementary			
	converges, diverges,	event, discrete random			
	root.	variable, continuous			
		random variable,			
	Hypotheses, significance	mathematical modelling,			
	level, one-tailed test,	independent, mutually			
	two-tailed test, test	exclusive, Venn diagram,			
	statistic, null hypothesis,	tree diagram, set			
	alternative hypothesis,	notation, conditional			
	critical value, critical	probability, two-way			
	region, acceptance	tables, critiquing			
	region, p-value, binomial	assumptions.			
	model, correlation				
	coefficients, product	Force, weight, tension,			
	moment correlation	thrust, friction,			
	coefficient, population	coefficient of friction, μ ,			
	coefficient, sample,	limiting, reaction,			
	inference, mean, normal	resultant, magnitude,			
	distribution, variance,	direction, bearing, force			
	assumed variance, linear	diagram, equilibrium,			
	regression, interpolation,	inextensible, light,			
		negligible, particle,			

QE	MS
CURIOSITY	COURAGE

COMPASSION



MPASSIOT					Com and a second
	extrapolation, coded	smooth, rough, uniform,			
	data	perpendicular.			
	Moment, turning effect,				
	sense, newton metre (N				
	m), equilibrium,				
	reaction, tension, rod,				
	uniform, non-uniform,				
	centre of mass, resolve,				
	tilting, 'on the point',				
	concurrent.				
Assessment:	Unit Assessments	Unit Assessments	Unit Assessments	Unit Assessments	
/		PPE 1		PPE 2	
Key/Historical	Interchanging range	Ensuring negatives in	Using radians for		
misconceptions	with domain, 1 to 1 and	the correct place for sin	calculations,		
in this unit:	1 to many	and cos, chain rule,	interchanging reciprocal		
	Geometric and	quotient rule and product rule	graphs to inverse functions.		
	arithmetic progression,	product rule	runctions.		
	negative ratios on	Interchanging position			
	geometry progression	vector with direction			
	difference between	vectors,			
	geometric sequence and				
	series, nth term formula				
	and sum formula				
Sequencing:	-	-			12 and progresses forward to provide students w
			ipleted by the end of acadel	my term 3 to allow for stude	ents to complete a number of past papers to best
	prepare them for their exa	ams.			