KS5
Mathematics Curriculum Maps 22/23

GEORGE SALTER ACADEMY

Year 12

Autumn 1

Date	Week	Pure	Applied (Mechanics & Statistics)
05.09.22	Week 1	Lesson 1 & 2- Introduction (may not happen) Lesson 3 & 4 – 2.1 solving quadratic equations & 2.2 Completing the square HW 1.1 laws of indices	8.1 Constructing a model & 8.2 Modelling assumptions
12.09.22	Week 2	Lesson 1 & 2- 2.3 Functions & 2.4 Quadratic graphs Lesson 3 & 4 – 2.5 The discriminant & 2.6 Modelling with quadratics HW 1.2 Expanding brackets & 1.3 factorising	8.3 Quantities and units & 8.4 working with vectors
19.09.22	Week 3	Lesson 1 & 2- 3.1 Linear simultaneous equations & 3.2 quadratic simultaneous equations Lesson 3 & 4 – 3.3 Simultaneous equations on graphs & 3.4 linear simultaneous equations HW 1.4 Negative/ fractional indices & 1.5 Surds	9.1 Displacement-time graphs & 9.2 Velocity-time graphs
26.09.22	Week 4	Lesson 1 & 2- 3.5 Quadratic inequalities & 3.6 Inequalities on a graph Lesson 3 & 4 – 3.7 Regions (& catch up time/ mixed exercise 3) HW- Revision of first 3 units	9.3 Constant acceleration formulae 1
03.10.22	Week 5	Lesson 1 & 2- assessment (may need to be moved) Lesson 3 & 4 – 4.1 cubic graphs & 4.2 Quartic graphs HW 4.3 Reciprocal Graphs	9.4 Constant acceleration formulae 2
10.10.22	Week 6	Lesson 1 & 2- 4.4 Points of intersection & 4.5 Translating graphs Lesson 3 & 4 – 4.6 Stretching graphs & 4.7 transforming functions HW Consolidate function Mixed exercise 4	9.5 Vertical motion under gravity
17.10.22	Week 7	Lesson 1 & 2- 5.1 y=mx+c & 5.2 equations of straight lines Lesson 3 & 4 – 5.3 Parallel & perpendicular lines & 5.4 Lengths and areas HW -Consolidate straight line graphs	10.1 forces diagrams & 10.2 forces as vectors

Pure units 1 to 8 need to be completed by Christmas holiday. Students will need to work a fast pace, but most of the content is higher tier GCSE, which they should already know.
If they are struggling with this, then intervention will be needed. Extra lesson time can not be used or the course will not be complete ready for AS exam.

Autumn 2

Date	Week	Pure	Applied (Mechanics & Statistics)
31.10.22	Week 8	Lesson 1 & 2- 5.5 Modelling with straight lines Lesson 3 & 4 – 6.1 midpoints & perpendicular bisectors & 6.2 Equation of a circle HW- equation of a circle	10.3 Forces and acceleration & 10.4 Motion in 2 D
07.11.22	Week 9	Lesson 1 & 2- 6.3 Intersections of straight lines and circles Lesson 3 & 4 – 6.4 Use of tangent and chord properties HW – 7.1 Algebraic fractions	10.5 Connected particles
14.11.22	Week 10	Lesson 1 & 2- 7.2 Dividing polynomials Lesson 3 & 4 – 7.3 The Factor theorem HW	10.6 Pulleys
21.11.22	Week 11	Lesson 1 & 2- 7.4 Mathematical proof Lesson 3 & 4 – 7.5 Methods of proof HW	1.1 Populations and samples, 1.2 sampling, 1.3 Non-random sampling
28.11.22	Week 12	Lesson 1 & 2– 8.1 Pascal's triangle & 8.2 Factorial notation Lesson 3 & 4- 8.3 Binomial expansion HW	1.4 Types of data & 1.5 The large data set
05.12.22	Week 13	Lesson 1 & 2 – 8.4 Solving binomial problems Lesson 3 & 4- 8.5 Binomial estimation HW	2.1 Measures of central tendency (HW 3.2 Box plota)
12.12.22	Week 14	Lesson 1 & 2- 8.5 Binomial estimation Lesson 3 & 4 – Revision lesson HW	2.2 Other measures of location & 2.3 measures of spread (HW 3.3 Cumulative frequency)

Year 12

Spring 1			
Date	Week	Pure	Applied (Mechanics & Statistics)
02.01.23	Week 15	Lesson 1 & 2- 12.1 Gradients of curves & 12.2 Finding the derivative Lesson 3 & 4 – 12.3 Differentiating x^n (Can skipped) & 12.4 Differentiating quadratics HW 12.5 Differentiating functions with 2 or more terms	2.4 Variance & standard deviation & 2.5 Coding (HW 3.4 Histograms)
09.01.23	Week 16	Lesson 1 & 2- 12.6 Gradients, tangents and normal Lesson 3 & 4 – 12.7 Increasing and decreasing functions & 12.8 second derivative HW Consolidate deifferentiation	3.1 Outliers
16.01.23	Week 17	Lesson 1 & 2- 12.9 stationary points Lesson 3 & 4 – 12.10 sketching gradient functions HW 9.1 The cosine rule	3.5 Comparing data (need all hw to be done from unit 3) (HW 4.1 Correlation)
23.01.23	Week 18	Lesson 1 & 2- 12.11 modelling with differentiation Lesson 3 & 4 – 13.1 Integrating x^n & 13.2 Indefinite integrals HW 9.2 The sine rule	4.2 Linear regression
30.01.23	Week 19	Lesson 1 & 2- 13.3 Finding functions & 13.4 Definite integrals Lesson 3 & 4 – 13.5 Areas under a curve & 13.6 Areas under x axis HW- 9.3 Area of triangles	5.1 calculating probabilities & 5.2 Venn diagrams
06.02.23	Week 20	Lesson 1 & 2- 13.7 Areas between curvres and lines Lesson 3 & 4 – 9.4 Solving triangle problems HW- 9.5 Graphs of sine, cosine, tangent	5.3 Mutually exlusive and independent events & 5.4 Tree diagrams
13.02.23	Week 21	Lesson 1 & 2- 9.6 transforming trig graphs Lesson 3 & 4 – 10.1 Angles in 4 quadrants & 10.2 Exact Trig ratios HW past paper questions	6.1 Probability distributions
Spring 2			
27.02.23	Week 22	Lesson 1 & 2- 10.3 Trig identities Lesson 3 & 4 – 10.4 Simple trig equations HW- past paper questions	6.2 The binomial distribution
06.03.23	Week 23	Lesson 1 & 2- 10.5 Harder trig equations Lesson 3 & 4 – 10.6 Equations and identities HW - past paper questions	6.3 Cumulative probabilities
13.03.23	Week 24	Lesson 1 & 2- 11.1 vectors & 11.2 representing vectors Lesson 3 & 4 – 11.3 Magnitude and direction & 11.4 Position vectors HW past paper questions	7.1 Hypothesis testing
20.03.23	Week 24	Lesson 1 & 2- 11.5 Solving geometric problems Lesson 3 & 4 – 11.6 Modelling with vectors HW past paper questions	7.2 Finding critical values
27.03.23	Week 26	Lesson 1 & 2- 14.1 Exponential functions & 14.2 y=e^x Lesson 3 & 4 – 14.3 exponential modelling HW past paper questions	7.3 one-tailed & 7.4 two-tailed test

Summer 1			
Date	**Week**	**Pure**	**Applied (Mechanics & Statistics)**
17.04.23	Week 27	Lesson 1 & 2- 14.4 Logarithms & 14.5 Laws of logarithms Lesson 3 & 4 – 14.6 Soving equations using logarithms HW past paper questions	11.1 Functions of time & 11.2 Using differentiation
24.04.23	Week 28	Lesson 1 & 2- 14.7 working with natural logarithms Lesson 3 & 4 – 14.8 Logarithms and non-linear data HW past paper questions	11.3 Maxima and minima problems
01.05.23	Week 29	Lesson 1 & 2- mixed exercise 14/ revision Lesson 3 & 4 – mixed exercise 11/revision HW past paper questions	11.4 Using integration
08.05.23	Week 30	Past papers	11.5 Constant acceleration
15.05.23	Week 31	Past papers	Past papers
22.05.23	Week 32	Past Papers	Past Papers
Summer 2			
05.06.23	Week 33	Start Yr 2 content	Start Yr 2 content
12.06.23	Week 34		
19.06.23	Week 35		
26.06.23	Week 36		
03.07.23	Week 37		
10.07.23	Week 38		
17.07.23	Week 39		

Year 13

Autumn 1			
Week	**Pure**	**Applied**	**Assessment**
Week 1	Radian Measure Inverse trig functions & solving equations	Modelling projectile motion	
Week 2	Modelling with trig functions Arcs & Sectors	Trajectory of a projectile	
Week 3	Triangles & circles Small angle approximations	Projectiles	End of Chapter Unit 7 (Covering radian measure, trigonometric functions, arcs, sectors and triangles) End of Chapter Test Unit 17 (Covering projectile motion & projectiles)
Week 4	Compound angle IDs Double angle IDs	Resolving Forces	
Week 5	Functions and reciprocal	Co-efficient of friction	End of Chapter Test Unit 8 (Covering compound angle ID, functions & reciprocals)
Week 6	Calculus of exponential	Motion of slope	End of Chapter Test Unit 18 (Covering forces, co-efficient of friction & motion of slope)
Week 7	Trig Functions	The turning effect of a force	End of Chapter Test Unit 9 (Covering exponential & trig functions)
Week 8	The chain rule The product rule The quotient rule	Equilibrium	
Autumn 2			
Week 9	Implicit Diff Differentiating inv functions	Equilibrium	End of Chapter Test Unit 10 (Covering chain, product & quotient rule) Chapter Test Unit 19 (Covering effect of forces & equilibrium)
Week 10	Factor theorem ext Simplifying rational expressions	Calculus with vectors Vectors in 3D	
Week 11	Partial fractions with distinct factors Partial fractions with repeated factors	Describing motion in 2D Acc equations Vectors in 3D	End of Chapter Test Unit 5 (Covering Factor theorem & rational expressions)
Week 12	Reversing SD Integration by substitution Integration by parts	Vectors in 3D	End of Chapter Test Unit 16 (Covering motion, acceleration & vectors including 3D)
Week 13	Using trig IDs in integration Integration rational functions	Catch Up	End of Chapter Test Unit 11 (Covering reversing SD, integration by substitution & parts)
Week 14	Catch Up of any missed work	Review Mechanics	
Week 15	Review Pure Assessment	Assessment	

Spring 1			
Week	**Pure**	**Applied**	**Assessment**
Week 16	Properties of Curves Parametric Equations		
Week 17	Connected rates of change Complicated areas	Set notation Venn Diagrams	End of Chapter Test Unit 12 (Covering curves, parametric equations & connected rate of changes)
Week 18	Intro to Diff eq Separable diff eqns Modelling with diff equations	Two way tables Tree Diagrams	End of Chapter Test Unit 20 (Covering notation, Venn diagrams, two way tables & tree diagrams)
Week 19	Modelling with diff equations	Intro to normal probabilities	End of Chapter Test Unit 13 (Covering diff equations, separable diff equations & modelling with diff equations)
Week 20	Combined transformation Modulas function Modulas equations and inequalities	Inverse normal distribution	End of Chapter Test Unit 3 (Covering transformation, Modulas function, equations & inequalities)
Week 21	Binomial theorem Binomial expansion of comp expressions	Finding unknown u or o	End of Chapter Test Unit 21 (Covering normal probabilities, normal distribution & finding u or o)
Spring 2			
Week 22	Binomial expansion of comp expressions	Review Stats ch20&21	End of Chapter Test Unit 6 (Covering Binomial theorem & binomial expansion)
Week 23	Fixed point iteration	Distribution of sample mean	
Week 24	Integration as the limit of a sum	Hypothesis test for mean Hypothesis test for correlation coefficient	End of Chapter Test Unit 14 (Covering roots of a function, newton R M & fixed point iterations)
Week 24	The trapezium rule (15)	Hypothesis test for correlation coefficient	End of Chapter Test Unit 22 (Covering sample mean, hypothesis test & correlation co-efficient)
Week 25	Review Pure	Review Stats	End of Chapter Test Unit 15 (Covering integration as limit of sum) End of
Week 26	Review Pure	Review Stats	
Summer 1			
	Review / Revision / As assessments		
Summer 2			
	Exams		