Year 13 Maths Route Map

Week	Date	Teacher 1 - Coombeshead	Textbook	Teacher 2 - Teign	Textbook
1	5 Sept	**Y13 e and ln Revision** **Y13 differentiation** • Revision - solving equations involving e and ln (1)		**Y13 Sequences** • Sequences suffix notation, identifying sequences as increasing, decreasing or periodic. Limit (1)	
2	12 Sep	• Revision - basic differentiation of e^x, lnx, sinx and cosx (2)		• Sequences suffix notation, identifying sequences as increasing, decreasing or periodic. Limit (1) • Sigma notation (1) • Arithmetic sequences (1)	
3	19 Sep	• Points of infection and concave/convex regions (1) • Chain rule (1)		• Arithmetic sequences (2)	
4	26 Sep	• Chain rule (1) • Chain rule - connected rates of change (1)		• Geometric sequences (3) •	
5	3 Oct	• Chain rule - connected rates of change (1) • Chain rule - differentiating a^x (1) • Product rule (1)		• Sequences and series in modelling (1) **Y13 Normal distribution** • Normal distribution - introduction and finding probabilities for standard distribution (1)	
6	10 Oct	• Product rule (1) • Quotient rule (1)		• Normal - finding probabilities, standardising (1) • Normal - Prob using calculator instead of standardising (1) • Normal - Prob using calculator instead of standardising (include hidden binomial) (1)	
7	17Oct	• Quotient rule (1) • Derivative of inverse (1) **Y13 Forces** • Forces (force diagrams, revision of resolving forces) (1)		• Normal - percentage points (inverse normal) (1) • Normal - percentage points missing μ and σ (inverse normal) (1)	
8	31 Oct	• Forces in equilibrium requiring resolving (2) •		• Normal distribution as a model (1) • Binomial mean and variance, Binomial as a model (1) • Normal as binomial approximation (1)	

9	7 Nov	• Friction at equilibrium (horizontal) (1) • Friction at equilibrium (inclined plane (2)		**Y13 Trigonometry** • Secant, cosecant, and cotangent ratios and associated graphs (2)	
10	14 Nov	• Newton's second law with resolving (horizontal) (1) • Newton's second law with resolving (inclined) (1)		• Trig identities $1+\tan^2x=\sec^2x$ and $1+\cot^2x=\operatorname{cosec}^2x$ (3)	
		• Newton's second law with resolving (inclined) (1) • Connected bodies including examples with friction and/or inclined planes (1) • Connected bodies including examples with friction and/or inclined planes (1)		**Y13 Hypothesis testing** Probabilities for distribution of the sample mean (1)	
11	21 Nov	**Y13 Integration** • Integrating e^x, x^{-1}, sinx, cosx (1) • Integration by substitution (1)		• Hypothesis test for mean using critical region (1) • Hypothesis test for mean using p values (2)	
12	28 Nov	• Integration by substitution (2) • Integration of $(ax+b)^n$, e^{ax+b}, sin(ax+b) etc (1)		• Hypothesis test for correlation coefficients (1) **Y13 Trigonometry** • Small angle approximation (1)	
13	5 Dec	• Integration of $(ax+b)^n$, e^{ax+b}, sin(ax+b) etc (1) • Further integration of trig identities (eg. use identities) (1)		• Small angle approximation (1) • Compound angle formulae (2)	
14	12 Dec	• Further integration of trig identities (definite integrals with surd answers) (1) • Integration of $f'(x)/f(x)$ (2)		• Compound angle formulae for first principles trig differentiation (1) • Double angle formulae (1)	
15	2 Jan	• Integration by parts (3)		• Double angle formulae (2)	
16	9 Jan	PPEs		PPEs	
17	16 Jan	• Area between two curves (2) •		• $a\cos x + b\sin x = R\sin(x+\alpha)$ etc. (3)	
18	23 Jan	• Integration and area exact values (e, ln and surds) (1) **Y13 Moments** • Moments (2)		• Integrations using double angle trig identities (2)	
19	30 Jan	**Y13 Vectors** • Vectors revision and introduce k (1)		**Y13 Partial fractions** • Partial fractions (2)	

		• Vectors in 3D (1)		• Dealing with improper fractions (1)	
20	6 Feb	• Vectors in 3D (2) • Vectors motion in 2D and RUVAT (1)		• Dealing with improper fractions (1) **Y13 Binomial Expansions** • Binomial expansions (1 lesson)	
21	20Feb	• Vectors motion in 2D and RUVAT (2)		• Binomial expansions (2 lessons) • Partial fractions and binomial (1)	
22	27 Feb	• Vectors motion in 2D and RUVAT (1) • Calculus and vectors (2)		• Integrating partial fractions (2)	
23	6 Mar	• Projectiles (2)		**Y13 Conditional Probability** • Venn diagram probability revise (mutually exclusive and independent probabilities and notation) (2) • Conditional probability (1)	
24	13 Mar	• Projectiles (1) **Y13 Parametric equations** • Parametric equations (2)		• Conditional probability (1) • Conditional probability and independence (1)	
25	20 Mar	• Parametric equations (1) • Parametric equations - differentiation (1)		• Conditional probability and independence (1) **Y13 Functions** • Functions, mappings, domain and range (2)	
26	27 Mar	• Parametric equations - differentiation (1) • Parametric equations - integration (1) **Y13 Integration as a Limit of a Sum and the Trapezium Rule** • Integration as a sum (1)		**Y13 Large Data Set** • Large data start (2) if possible as combined group	
27	17 Apr	• Trapezium rule (2)		**Folder:Y13 Functions** • Composite functions (1) • Modulus function and graphs (1) • Modulus functions solve (1)	

28	24 Apr	**Y13 Implicit Differentiation** • Implicit differentiation (3)		• Modulus functions solve (1) **Y13 Transforming graphs** • Inverse trig and graphs (1)	
29	1 May	**Y13 Differential equations** • Forming differential equations (1) Solving differential equations (1)		• Transformation of graphs (2) • Include recap all graphs inc. e, ln, sec, etc. and inverse trig) **Y13 Proof** Proof (1)	
30	8 May	• Solving differential equations (3) •		• Proof (1) **Y13 Numerical methods** • Location of roots/change of sign (1)	
31	15 May	• Differential equations in context (1) • Limitations of models (1)		• Newton Raphson (1) • Iteration formulae, staircase and cobweb diagrams (2)	
32	22 May	• Revision		• Revision	
33	5 Jun			•	
34	12 Jun				
35	19 Jun				
36	26 Jun				
37	3 Jul				
38	10 Jul				
39	17 Jul				