

Procedural knowledge (exam technique, skills etc):

- a: Accuracy
- b: Problem solving
- c: Logic
- d: Communication
- e: Interpretation
- f: Appropriate use of technology
- g:
- h: Diagram use
- i: Revision techniques
- j: Numeracy
- k: Units and dimensions

Across the entire curriculum thus not referenced subsequently

Across work set in all work outside of class due to synoptic nature of work set, and in progress days/interventions

Across the entire curriculum thus not referenced subsequently

Exam technique
Other procedural knowledge

No of lessons	Disciplinary Knowledge area	Disciplinary Knowledge Content	Disciplinary knowledge, that this interleaves with (excluding Y12 content)	Procedural knowledge progression	RS revision knowledge topic	HW focus and actions	Assessment (topic and skills assessed)
6	Algebraic methods	Proof by contradiction Algebraic fractions Partial fractions Repeated factors Algebraic division			Notes page What is the procedure to conduct proof by contradiction How do you express an expression in partial fractions if there is a repeated root in the denominator?	All homeworks synoptic and diagnostic	As homework column - synoptic AP as test; flexible AP as Assignment per half term
7	Functions and graphs	The modulus function Functions and mappings Composite functions Inverse functions $y=f(x)$ and $y=f^{-1}(x)$ Combining transformations Solving modulus problems	Algebraic methods	b,c,d	Notes page Explain transformations of $a f(bx+c)+d$ and modulus transformations on $f(x)$ How do you find the inverse of a function, and what are the effects on domain and range? How do you solve equations involving the modulus?		
8	Sequences and series	Arithmetic sequences Arithmetic series Geometric sequences Geometric series Sum to infinity Sigma notation Recurrence relations Modelling with series			Notes page Prove the sum of an arithmetic series Prove the sum of a geometric series and justify the sum to infinity.		
3	Binomial expansion	Expanding $(1+x)^n$ Expanding $(a+bx)^n$ Using partial fractions	Algebraic methods	b	Notes page How can binomial expansion be used to estimate the fifth root of a number?		
2	Radians	Radian measure Arc length Areas of sectors and segments Solving trigonometric equations Small angle approximations			Notes page What are the formulae for arc length, sector area, segment area?		
3	Trigonometric functions	Secant, cosecant and cotangent Graphs of $\sec x$, $\csc x$ and $\cot x$ Using $\sec x$, $\csc x$ and $\cot x$ Trigonometric identities Inverse trigonometric functions	Algebraic methods Functions and graphs Radians	b,h,k	Notes page Sketch graphs of all 6 trig functions		
7	Trigonometry and modelling	Addition formulae Using the angle addition formulae Double-angle formulae Solving trigonometric equations Simplifying $a \cos x + b \sin x$ Proving trigonometric identities Modelling with trigonometric functions	Algebraic methods Functions and graphs Radians Trigonometric functions	b,c,f,h	Notes page What are the (13) important trig identities you know? How do you express an expression in harmonic form?		
5	Parametric equations	Parametric equations Using Trigonometric Identities Curve sketching Points of intersection Modelling with parametric equations	Algebraic methods Functions and graphs Radians Trigonometric functions Trigonometry and modelling	b,f,h,k	Notes page What are the methods of converting parametric to cartesian and when should each be used?		
10	Differentiation	Differentiating $\sin x$ and $\cos x$ Differentiating exponentials and logarithms The chain rule The product rule The quotient rule Differentiating trigonometric functions Parametric differentiation Implicit differentiation Using second derivatives Rates of change	Radians Parametric equations	c,d,e,h,k	Notes page Prove derivative of $\cos(x)$ by first principles How do you differentiate parametric equations? What is implicit differentiation? What are the 'basic' differentiation rules?		
4	Numerical methods	Locating roots Iteration The Newton-Raphson method Applications to modelling	Differentiation	c,f,h	Notes page Draw and explain staircase and spiderweb diagrams Explain, using a graph, the Newton-Raphson method		
11	Integration	Integrating standard functions Integrating $f(ax+b)$ Using trigonometric identities Reverse chain rule Integration by substitution Integration by parts Partial fractions Finding areas The trapezium rule Solving differential equations Modelling with differential equations	Algebraic methods Radians Trigonometric functions Trigonometry and modelling Parametric equations Differentiation	f,h,k	Notes page Explain the steps of integration by substitution Explain the steps of integration by parts Explain the steps of integrating parametrically How can you identify which method of integration to use? Considering the trapezium rule, explain integration as the limit of a sum		
		3D coordinates			Notes page		

	Vectors	Vectors in 3D Solving geometric problems Application to mechanics		How do you find the angle a vector makes with a 3D coordinate axis?
2		Exponential models	b,d,e,h,k	Notes page How do you find PMCC on your calculator
3	Regression, correlation and hypothesis testing	Measuring correlation Hypothesis testing for zero correlation	d,e	Notes page What are the conditional probability formulae, and why do they work?
3	Conditional probability	Set notation Conditional probability Conditional probabilities in Venn diagrams Probability formulae Tree diagrams	b,c,d,e,h	Notes page How do you find Normal probabilities, and inverse Normal probabilities, on your calculator How do we use the standard normal distribution to find unknown μ and σ ? What are the steps in approximating a Binomial distribution, and when can it be done? How do we perform a hypothesis test (consider all 3 situations)
7	Normal distribution	The normal distribution Finding probabilities for normal distributions The inverse normal distribution function The standard normal distribution Finding μ and σ Approximating a binomial distribution Hypothesis testing with the normal distribution	Regression, correlation and hypothesis testing Conditional probability	b,d,f,h
5	Moments	Moments Resultant moments Equilibrium Centres of mass Tilting		Notes page Explain what is meant if something is at the point of tilting
2	Forces and friction	Resolving forces Inclined planes Friction	Moments	b,h,k Notes page Explain the limiting value of friction
3	Projectiles	Horizontal projection Horizontal and vertical components Projection at any angle Projectile motion formulae		b,h,k Notes page If a particle is projected at an angle why do we need to work in each dimension separately?
5	Applications of forces	Static particles Modelling with statics Friction and static particles Static rigid bodies Dynamics and inclined planes Connected particles	Moments Forces and friction	b,h,k Notes page
4	Further Kinematics	Vectors in kinematics Vector methods with projectiles Variable acceleration in one dimension Differentiating vectors Integrating vectors	Differentiation _____ b,h,k _____ _____ _____	Notes page