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Year Group	TOPICS	Brief explanation of content covered & Brief outline of key concepts and skills learned
Year 7 (KS3)	**Autumn 1:** Module 1: Number: Place Value & Rounding Module 2: Number: Four Operations I Module 3: Number: Number Properties I **Autumn 2:** Module 4: Geometry: Properties of Angles I Module 5: Geometry: Properties of Shapes I Module 6: Geometry: Constructions I **Spring 1:** Module 7: Number: Fractions Module 8: Number: Percentages Module 9: Ratio: Ratio & Proportion I **Spring 2:** Module 10: Algebra: Algebraic Manipulation I Module 11: Algebra: Solving Equations I Module 12: Algebra: Sequences & Graphs I **Summer 1:** Module 13: Statistics: Representing Data I Module 14: Statistics: Averages & Range I Module 15: Statistics: Probability I **Summer 2:** Module 16: Geometry: Mensuration Module 17: Geometry: Perimeter& Area I Module 18: Geometry: Volume & Surface Area	Students will secure and deepen their understanding and confidence with number work and calculations • Develop understanding of shape and space with 3D shapes and angle rules. • Be introduced to algebra and progress into graphs and transformations • Represent, summarise, and compare discrete data sets
Year 8 (KS3)	**Autumn 1:** Module 19: Number: Four Operations II Module 20: Number: Number Properties II Module 21: Number: Fractions, Decimals & Percentages **Autumn 2:** Module 22: Geometry: Properties of Angles II Module 23: Geometry: Constructions I	Students will work with powers, roots and scientific forms of number • Develop their understanding of proportion and proportional change • Explore 2D and 3D circular shapes • Improve their algebraic manipulation skills • Generate sequences and non-linear graphs • Represent, summarise and compare continuous data sets • Learn about experimental and theoretical probability

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	Module 24: Geometry: Perimeter& Area II **Spring 1:** Module 25: Algebra: Algebraic Manipulation II Module 26: Algebra: Solving Equations II Module 27: Algebra: Sequences & Graphs II **Spring 2:** Module 28: Ratio: Ratio & Proportion II Module 29: Ratio: Speed Module 30: Ratio: Proportional Reasoning **Summer 1:** Module 31: Statistics: Representing Data II Module 32: Statistics: Averages & Range II Module 33: Statistics: Probability II **Summer 2:** Module 34: Geometry: Volume & Surface Area II Module 35: Geometry: Transformations	
Year 9 **("transition year" linking KS3 and KS4)**	**Autumn 1:** Module 1: Number Skills (3 weeks) Module 2: Statistical diagrams & Averages (3 weeks) Module 3: Sequences (2 weeks) **Autumn 2:** Module 4: Ratio & Proportion (3 weeks) Module 5: Percentages (2 weeks) Module 6: Angles & Transformations (2 weeks) **Spring 1:** Module 6: Angles & Transformations (2 weeks) Module 7: Constructions & Loci (2 weeks) **Spring 2:** Module 8: Algebraic Manipulation (3 weeks) Module 9: Length. Area & Volume (3 weeks)	• Students will explore accuracy in calculations • Develop their understanding of proportionality • Improve skills of construction • Discover, use and apply Pythagoras' Theorem • Make geometric conjectures and proofs • Work with linear and non-linear graphs • Derive and solve 2 simultaneous equations, graphically and algebraically use tree diagrams to calculate probabilities.

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	Summer 1: Module 10: Linear Graphs (3 weeks) Module 11: Right-angled Triangles (2 weeks) **Summer 2:** Module 11: Right-angled Triangles (1 week) Module 12: Probability (2 weeks) **END OF YEAR EXAMS & REVISION**	
Year 10 (KS4)	**Autumn 1:** Module 13: Equations & Inequalities Module 14: Accuracy, Powers & Surds **Autumn 2:** Module 15: Quadratic Equations Module 16: Sampling & More complex Diagrams **Spring 1:** Module 17: Combined Events Module 18: Properties of circles **Spring 2:** Module 19: Proportionality Module 20: Further Pythagoras &Trigonometry **Summer 1:** Module 21: Further Graphs Module 22: Algebraic Fractions & Functions **Summer 2:** Module 23: Vector Geometry **END OF YEAR EXAMS & REVISION**	Students will be introduced to trigonometry, circle theorems and vectors • Students will also start exploring content of the new curriculum such as: • Solving problems involving exponential growth and decay • Investigate quadratic and geometric sequences • Find and interpret gradients of non-linear graphs • Find and interpret areas under graphs • Know and use the equation of a circle
Year 11 (KS4)	**Autumn 1:** Module 24: Compound Measures Module 25: Congruence & Similarity **Autumn 2:** Module 26: Recap Quadratics Module 27: Recap Simultaneous Equations **MOCK EXAM and REVISION**	Students will manipulate surds and use them in exact calculations • Use Pythagoras' Theorem and trigonometry in 3D applications and non-right angled problems • Make conjectures and proofs with circle theorems and vectors • Solve non-linear simultaneous equations Students will continue exploring content of the new curriculum such as: • General iterative processes • Composite functions • Geometric progressions • Graphs of exponential and trigonometric function

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	Spring 1: Module 27: Gradients & areas under graphs **SPRING MOCK EXAM and REVISION** **Half Term** **EXAMS/REVISION/RECAP** **Summer:** **EXAMS/REVISION/RECAP**	
Year 12 (KS5)	**Autumn:** **Algebra and functions:** Algebraic expressions – basic algebraic manipulation, indices and surds Quadratic functions – factorising, solving, graphs and the discriminants Equations – quadratic/linear simultaneous Inequalities – linear and quadratic (including graphical solutions) Graphs – cubic, quartic and reciprocal Transformations – transforming graphs – f(x) notation **Coordinate geometry in the (x, y) plane:** Straight-line graphs, parallel/perpendicular, length and area problems **Circles:** equation of a circle, geometric problems on a grid Further algebra: Algebraic division, factor theorem and proof The binomial expansion **Trigonometry:** Trigonometric ratios and graphs Trigonometric identities and equations	Students will be taught a linear programme covering pure maths, mechanics and statistics with a deeper emphasis on developing and assessing reasoning, problem-solving skills and modelling. Pure Maths - Proof, algebra and functions, coordinate geometry, sequences and series, trigonometry, exponentials and logarithms, differentiation, integration Statistics - Sampling, data presentation and interpretation, probability, statistical distributions and statistical hypothesis testing

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	Spring Term: **Vectors (2D)** Definitions, magnitude/direction, addition and scalar multiplication Position vectors, distance between two points, geometric problems **Differentiation** Definition, differentiating polynomials, second derivatives Gradients, tangents, normals, maxima and minima **Integration** Definition as opposite of differentiation, indefinite integrals of xn Definite integrals and areas under curves Exponentials and logarithms: Exponential functions and natural logarithms **Summer Term:** **Algebraic and partial fractions:** Simplifying algebraic fractions Partial fractions **STATISTICS** **Statistical sampling:** Introduction to sampling terminology; Advantages and disadvantages of sampling Understand and use sampling techniques; Compare sampling techniques in context	

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	Data presentation and interpretation: Calculation and interpretation of measures of location; Calculation and interpretation of measures of variation; Understand and use coding Interpret diagrams for single-variable data; Interpret scatter diagrams and regression lines; Recognise and interpret outliers; Draw simple conclusions from statistical problems **Probability:** Mutually exclusive events; Independent events Statistical distributions: Use discrete distributions to model real-world situations; Identify the discrete uniform distribution; Calculate probabilities using the binomial distribution (calculator use expected) **MECHANICS:** **Quantities and units in mechanics** Introduction to mathematical modelling and standard S.I. units of length, time and mass Definitions of force, velocity, speed, acceleration and weight and displacement; Vector and scalar quantities **Kinematics 1 (constant acceleration)** Graphical representation of velocity, acceleration and displacement Motion in a straight line under constant acceleration; suvat formulae for constant acceleration; Vertical motion under gravity	

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Year 13 (KS5)	**Autumn Term:** **Proof: Examples including proof by deduction* and proof by contradiction** **Functions and modelling:** Modulus function Composite and inverse functions Transformations Modelling with functions* *examples may be Trigonometric, exponential, reciprocal etc. **Differentiation:** Differentiating sin x and cos x from first principles Differentiating exponentials and logarithms Differentiating products, quotients, implicit and parametric functions. Second derivatives (rates of change of gradient, inflections) Rates of change problems* (including growth and kinematics) *see Integration (part 2) – Differential equations **Integration (part 1):** Integrating xn (including when n = –1), exponentials and trigonometric functions Using the reverse of differentiation, and using trigonometric identities to manipulate integrals **Spring Term:** **Series and sequences** Arithmetic and geometric progressions (proofs of 'sum formulae') Sigma notation Recurrence and iterations **The binomial theorem** Expanding (a + bx)n for rational n; knowledge of range of validity Expansion of functions by first using partial fractions	, numerical solutions , modelling with trigonometric equation and parametric equations. Vectors. Mechanics - Vectors, kinematics, forces and Newton's Laws, moments.

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	Trigonometry Radians (exact values), arcs and sectors Small angles Secant, cosecant and cotangent (definitions, identities and graphs); Inverse trigonometrical functions; Inverse trigonometrical functions Compound* and double (and half) angle formulae *geometric proofs expected R cos (x ± α) or R sin (x ± α) Proving trigonometric identities Solving problems in context (e.g. mechanics) **Numerical methods:** Location of roots Solving by iterative methods (knowledge of 'staircase and cobweb' diagrams) Newton-Raphson method Problem solving **Parametric equations:** Definition and converting between parametric and Cartesian forms Curve sketching and modelling **Integration (part 2)** Integration by substitution Integration by parts Use of partial fractions Areas under graphs or between two curves, including understanding the area is the limit of a sum (using sigma notation) The trapezium rule Differential equations (including knowledge of the family of solution curves)	

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	Vectors (3D): Use of vectors in three dimensions; knowledge of column vectors and i, j and k unit vectors **Summer Term:** **STATISTICS:** **Statistical hypothesis testing** Language of hypothesis testing; Significance levels Carry out hypothesis tests involving the binomial distribution **Regression and correlation** Change of variable Correlation coefficients Statistical hypothesis testing for zero correlation **Probability** Using set notation for probability Conditional probability Questioning assumptions in probability **The Normal distribution** Understand and use the Normal distribution Use the Normal distribution as an approximation to the binomial distribution Selecting the appropriate distribution Statistical hypothesis testing for the mean of the Normal distribution **MECHANICS:** **Moments** Forces' turning effect **Forces & Newton's laws** Newton's first law, force diagrams, equilibrium, introduction to i, j system Newton's second law, 'F = ma', connected particles (no resolving forces or use of F = μR); Newton's third law: equilibrium, problems involving smooth pulleys **Forces at any angle:**	

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	Resolving forces Friction forces (including coefficient of friction μ) **Applications of forces** Equilibrium and statics of a particle (including ladder problems) Dynamics of a particle **Kinematics 2 (variable acceleration)** Variable force; Calculus to determine rates of change for kinematics Use of integration for kinematics problems i.e. **Applications of kinematics:** Projectiles **Further kinematics** Constant acceleration (equations of motion in 2D; the i, j system) Variable acceleration (use of calculus and finding vectors $\dot{\mathbf{r}}$ and $\ddot{\mathbf{r}}$ at a given time)	