|                     | Term 1  | Term 2   | Term 3   |
|---------------------|---|--|--|
| Year 7              | Analysing and displaying data, number skills, decimals, and measures, Lines and angles  | Expressions, functions and formulae, fractions and percentages, probability.   | Ratio and proportion, sequences, graphs, and transformations.  |
| Year 8              | Statistics charts and graphs, calculations with fractions, expressions, and equations   | Percentage, decimals, and fractions,<br>number, real life graphs and decimals and<br>ratio.  | Lines and angles, area and volume, straight line graphs.   |
| Year 9 Set 1        | Basic number, indices, roots, reciprocals,<br>order of operations, factors, multiples,<br>primes, standard form, surds, algebra: the<br>basics, rearranging and solving equations,<br>sequences, averages, and the range and<br>representing and interpreting data. | Scatter graphs, fractions, percentages,<br>ratio and proportion, angles in polygons<br>and parallel lines, Pythagoras theorem,<br>trigonometry, real life graphs.  | Linear graphs, coordinate geometry,<br>quadratic, cubic and other graphs,<br>perimeter, area, and circles, 3D shapes<br>and volume, accuracy and bounds,<br>transformations, constructions, loci, and<br>bearings. |
| Year 9 Set 2        | Real-life graphs, straight line graphs,<br>transformations, ratio, proportion,<br>Pythagoras and trigonometry, probability.   | Multiplicative reasoning plans and<br>elevations, constructions, loci, bearings,<br>expanding and factorising quadratics,<br>perimeter, area, volume of 3D shapes. | Fractions, indices, standard form,<br>congruence, similarity, vectors, non-linear<br>graphs, solving simultaneous equations,<br>rearranging formulae.  |
| Year 9 Set 3        | Place value, decimals, indices, factors,<br>primes, and multiples, basic algebra,<br>expand, factorise brackets, expressions,<br>substitution, displaying data, scatter<br>graphs   | Operations of Fractions, Fraction,<br>Decimals and Percentage conversions,<br>percentages, equations, inequalities,<br>sequences.                                  | Properties of shapes, angle facts, angles<br>in polygons, sampling, averages,<br>perimeter, area, and volume.  |
| Year 9 Set 4, 5 + 6 | Place value, decimals, indices, factors,<br>primes, and multiples, basic algebra,<br>expand, factorise brackets, expressions,<br>substitution, displaying data, scatter<br>graphs   | Ratios of Fractions, Fraction, Decimals<br>and Percentage conversions, percentages,<br>equations, inequalities, sequences.   | Properties of shapes, angle facts, angles<br>in polygons, sampling, averages,<br>perimeter, area, and volume.  |
| Year 10 Set 1       | Solving quadratics, simultaneous<br>equations, inequalities, probability,<br>multiplicative reasoning, similarity, and<br>congruence in 2D and 3D shapes.   | Trigonometric graphs, non-right-angle<br>trigonometry, collecting data, cumulative<br>frequency, box plots, histograms.  | Sketching graphs, further graphs,<br>expanding three brackets, circle<br>theorems, circle geometry, further<br>changing the subject, algebraic fractions.  |

| Year 10 Set 2     | Solving quadratic and simultaneous<br>equations, inequalities, probability,<br>multiplicative reasoning, similarity, and<br>congruence in 2D and 3D shapes.   | Trigonometric graphs, non-right-angle<br>trigonometry, collecting data, cumulative<br>frequency, box plots, histograms.  | Sketching graphs, further graphs,<br>expanding three brackets, circle<br>theorems, circle geometry, further<br>changing the subject, algebraic fractions. |
|-------------------|---|--|---|
| Year 10 Set 3     | Real life graphs, straight line graphs,<br>transformations, ratio, proportion,<br>Pythagoras theorem, trigonometry,<br>probability.   | Multiplicative reasoning, plans and<br>elevations, constructions, loci, bearings,<br>expanding and factorising quadratics,<br>perimeter, area, and volume.   | Fractions, indices, standard form,<br>congruence, similarity, vectors, non-linear<br>graphs, solving simultaneous equations,<br>rearranging formulae.     |
| Year 10 Set 4 + 5 | Real life graphs, straight line graphs,<br>transformations, ratio, proportion,<br>Pythagoras theorem, trigonometry.   | Probability, Multiplicative reasoning,<br>plans and elevations, constructions, loci,<br>bearings.  | Expanding and factorising quadratics, perimeter, area, and volume.  |
| Year 10 Set 6     | Properties of number, the four operations and ratio   | Money, calendar and time   | Measures, geometry, statistics.   |
| Year 11 Set 1     | 3D Pythagoras, non-right-angle<br>trigonometry, surds, solving equations<br>and inequalities, similar shapes,<br>functions, proportional reasoning,<br>geometric progressions, non-standard<br>sequences. | Quadratic inequalities, quadratic<br>simultaneous equations, sketch and<br>interpret non-linear or quadratic graphs,<br>graph transformations, construct and<br>interpret diagrams for grouped discrete<br>data, rates of change and vectors | Exam revision   |
| Year 11 Set 2     | 3D Pythagoras, non-right-angle<br>trigonometry, surds, solving equations<br>and inequalities, similar shapes,<br>functions, proportional reasoning,<br>geometric progressions, non-standard<br>sequences. | Quadratic inequalities, quadratic<br>simultaneous equations, sketch and<br>interpret non-linear or quadratic graphs,<br>graph transformations, construct and<br>interpret diagrams for grouped discrete<br>data, rates of change and vectors | Exam revision   |
| Year 11 Set 3     | 3D Pythagoras, non-right-angle<br>trigonometry, surds, solving equations<br>and inequalities, similar shapes,<br>functions, proportional reasoning,<br>geometric progressions, non-standard<br>sequences. | Quadratic inequalities, quadratic<br>simultaneous equations, sketch and<br>interpret non-linear or quadratic graphs,<br>graph transformations, construct and<br>interpret diagrams for grouped discrete<br>data, rates of change and vectors | Exam revision   |

| Year 11 Set 4   | Rounding, accuracy, sequences,<br>trigonometry, bearings, equations,<br>inequalities, simultaneous equations,<br>transformations, y=mx+c, inequalities,<br>growth and decay, fdp.  | Proportion, surface area and volume of<br>3D shapes, factorise a quadratic,<br>rearranging formulae, solve a quadratic,<br>interpret quadratic graphs, use a sample<br>to infer properties of a population,<br>probability.   | Exam revision  |
|-----------------|--|---|--|
| Year 11 Set 5   | Trigonometry, roots, indices,<br>simultaneous equations, similar shapes,<br>factorising quadratic expressions,<br>proportion, geometric progressions,<br>surface area and volume of 3D shapes,<br>growth, and decay  | Interpret quadratic graphs, solve<br>quadratics, use a sample to infer<br>properties of a population, vectors.  | Exam revision  |
| Year 11 Set 6   | Geometry, statistics.  | Calculations, fractions, decimals,<br>percentages, basic algebra, ratio and<br>perimeter and area.  |  |
| Year 12 Further | <ul> <li>A: Sorting and packing algorithms and complexity; critical path analysis and resources scheduling; network flows; linear programming; the simplex method; linear programming applications.</li> <li>B: Complex numbers; Matrices and transformations; Determinant, inverse; simultaneous equations; invariant points and lines; Summing series and formulae.</li> </ul> | <ul> <li>A: Approximation and relative error; the solutions of equations; approximating functions; numerical differentiation and integration.</li> <li>B: Roots of polynomials; proof by induction; vector and Cartesian equation of a line; scalar product and angle between lines; equation of a plane.</li> </ul>        | <ul> <li>A: Rates of convergence in numerical processes.</li> <li>B: Pure Core review and exam practice.</li> <li>END OF YEAR 12 EXAM</li> </ul>   |
| Year 12 Maths   | <ul> <li>A: Calculating with fractions and indices;<br/>the binomial theorem and combinations;<br/>proof; simultaneous equations;<br/>inequalities; quadratics; polynomials and<br/>the factor theorem; sketching and<br/>transforming graphs.</li> <li>B: Surds and rationalising the<br/>denominator; trig recap, sine and cosine</li> </ul>                                   | A: Data collection and sampling; summary<br>statistics and outliers; histograms,<br>cumulative frequency, and scatter graphs;<br>probability of mutually exclusive and<br>independent events; probability functions<br>and discrete uniform distributions; the<br>binomial probability distribution;<br>hypothesis testing. | <ul> <li>A: Sketching recap and reciprocal graphs; equation of a circle; equations of tangents and normals; exam practice.</li> <li>B: Variable acceleration; exponential modelling.</li> <li>END OF YEAR 12 EXAM.</li> <li>A: Partial fractions.</li> </ul> |

|                 | rules, area of a triangle; parallel and<br>perpendicular lines, length, and mid-point<br>of line segment; y=mx+c and<br>intersections; proportion graphs; vectors;<br>kinematics with constant acceleration;<br>force diagrams and Newton's laws of<br>motion; connected particles, lifts, and<br>pulleys.  | <b>B:</b> Differentiation from first principles,<br>differentiation, and gradient graphs;<br>equations of tangents and normals,<br>sketching graphs using stationary points;<br>exponential and logarithmic functions<br>and graphs; the exponential function;<br>natural logarithms; second derivatives;<br>integration and the fundamental theorem<br>of calculus; trigonometric graphs and<br>identities (sin, cos, tan).   | <b>B:</b> Radians, sectors, and small angle approximations. |
|-----------------|---|--|---|
| Year 13 Further | <ul> <li>A: Homogeneous recurrence relations;<br/>applications of homogeneous recurrence<br/>relations; non-homogeneous recurrence<br/>relations; properties of sequences and<br/>limits; applications of non-homogeneous<br/>recurrence relations.</li> <li>Set notation; defining groups; group<br/>theory; subgroups and Lagrange's<br/>theorem.</li> <li>B: Summing series with partial fractions;<br/>further proof by induction; De Moivre's<br/>theorem; roots of unity; Maclaurin's<br/>expansion; Euler's formula; Hyperbolic<br/>functions; Advanced differentiation and<br/>integration; polar coordinates.</li> </ul> | <ul> <li>A: Invariant lines and eigenvectors;<br/>eigenvalues and the characteristic<br/>equation of a square matrix; powers of<br/>square matrices and the Cayley-Hamilton<br/>theorem.</li> <li>Functions of two variables; contours and<br/>sections; partial differentiation; tangent<br/>planes and normal lines; grad and<br/>stationary points.</li> <li>B: Inverse of 3x3 matrix; vector product;<br/>first order differential equation; second-<br/>order differential equations;<br/>simultaneous differential equations;<br/>applications of integration; mean<br/>volumes; volumes of revolution.</li> </ul> | Exam practice/study leave.                                  |
| Year 13 Maths   | <ul> <li>A: Arithmetic sequences and series;<br/>geometric sequences and series, sum to<br/>infinity; sigma notation; the general<br/>binomial expansion; 3D vectors.<br/>The Normal distribution; hypothesis<br/>testing; proof by contradiction.</li> <li>B: Concavity and points of inflection;<br/>inverse trig functions; reciprocal trig</li> </ul>   | A: Implicit differentiation; connected<br>rates of change; differentiating inverse<br>functions; change of sign; fixed-point<br>iteration; Newton-Raphson method;<br>upper and lower bounds.<br>Conditional probability; hypothesis<br>testing on correlation coefficients;<br>working with Large Data Sets.   | Exam practice/study leave.                                  |

| functions; reciprocal identities;<br>compound angle formulae; functions,<br>range, and domain; modulus functions;<br>projectile motion; forces in 2D;<br>parametric equations. | <b>B:</b> Integrate exponential, reciprocal, and trigonometric functions; R.sin(x+a) and R.cos(x+a) forms; integration by substitution; integration by parts; integration using partial fractions; working with friction; moments; |  |
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|  | comprehension preparation.   |  |