**Edexcel Maths A Level - Overview 2022-23**

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| **Year Group** | **Autumn Term** | **Spring Term** | **Summer Term** |
|  | **Term 1** | **Term 2** | **Term 3** | **Term 4** | **Term 5** | **Term 6** |
| **Year 12***The first year of the course will begin with a review of topics seen at GCSE. These will quickly get expanded upon, where techniques for factorising, expanding, and finding gradients are introduced.**In Statistics, students will see new measures of spread and ways of modelling data to test the validity of a hypothesis.**In Mechanics, students will be introduced to the laws which govern movement, both with constant acceleration and variable acceleration.* | **Pure*** Algebra and functions

Indices, surds, quadratics – factorising, solving, graphs, completing the square, discriminants, simultaneous equations, hidden quadratics, inequalities, set notation, algebraic division, factor theorem**Statistics*** Sampling

Terminology, advantages and disadvantages of sampling, comparing techniques* Data presentation and interpretation

Standard deviation, percentiles, linear interpolation, coding, histograms, box plots, outliers, regression lines, correlation | **Pure*** Coordinate geometry in the (x,y) plane

Straight line graphs, parallel and perpendicular lines, equation of a circle, equation of a tangent* Trigonometry

Graphs of trig functions, sine and cosine rules, identities, solving trig equations**Statistics*** Probability

Mutually exclusive, independent, Venn diagrams* Statistical distributions

Uniform distribution, binomial distribution | **Pure*** Graphs and transformations

Cubic, quartic and reciprocal graphs, graph transformations* Sequences and series

Binomial expansion**Statistics*** Statistical hypothesis testing

Null and alternative hypotheses, significance levels, critical regions | **Pure*** Differentiation

Differentiating polynomials, second derivatives, first principles, gradients, tangents, normals, nature of a turning point, increasing and decreasing functions**Mechanics*** Kinematics

Velocity-time graphs and displacement-time graphs, suvat equations, calculus to solve problems with variable acceleration | **Pure*** Integration

Indefinite integrals, definite integrals, area under a curve* Algebra and functions

Exponential functions, logarithms – graphs, laws, solving equations, modelling growth and decay* Vectors

Magnitude, addition of vectors, geometric interpretation, i,j notation**Mechanics*** Forces and Newton’s laws
* Resolving, force diagrams, smooth pulleys, connected particles
 | Start of Year 13 content |
| **Year 13***Students will now use their Year 1 knowledge to access Year 2 content.**They will see formal mathematical proofs for the first time, the formulas for sequences, and key methods used in calculus.**In Statistics, the distributions seen a have wider impact outside of Maths, and more of the laws of probability will be used.**In Mechanics students will see moments, resolving on a place and motion in 2D.* | **Pure*** Proof

Proof by contradiction, prove that √2 is irrational, prove the infinity of primes* Algebra and functions

Algebraic division, modulus functions, combinations of transformations, composite functions, domains and ranges**Statistics*** Probability

Conditional probability, laws of probability* Statistical distributions

Normal distribution, normal approximation with continuity corrections | **Pure*** Coordinate geometry in the (x,y) plane

Parametric equations, converting between Cartesian and parametric form, parametric differentiation* Sequences and series

Binomial expansion for any rational power, range of validity, increasing, decreasing and periodic sequences, sigma notation, arithmetic sequences, geometric sequences, sum to infinity**Statistics*** Statistical hypothesis testing

Correlation coefficients, normal distributions, distribution of the sample means | **Pure*** Trigonometry

Radian measure, arc length, sector area, small angle approximations, cosec, sec, cot and their identities, inverse trig functions, double angle formulas, harmonic form* Differentiation

First principles for sin and cos, points of inflection, convex and concave functions, exponentials, ln(x), trig functions, product rule, quotient rule, chain rule, rates of change, implicit differentiation**Mechanics*** Kinematics

suvat equations in 2D, general motion in 2D, projectiles* Forces and Newton’s laws

Inclined planes, friction | **Pure*** Algebra and functions

Partial fractions* Integration

Trapezium rule, iteration, cobweb and staircase diagrams, Newton-Raphson method, integration by parts, integration by substitution, integration using partial fractions, separable first order differential equations**Mechanics*** Moments

Moments in simple statics, rigid bodies, ladder problems | Revision |  |