



# MATHEMATICS - KS5

## Year 12

### Half Term 1

**Pure:** surds, indices, simultaneous equations, inequalities, co-ordinate geometry, series, quadratics, curve sketching, transformations, differentiation, integration.

### Half Term 2

**Pure:** factor theorem, factorising cubics, sine and cosine rules, area of a triangle, logs, circle geometry.

**Mechanics:** vectors, velocity-time graphs, constant acceleration equations, variable acceleration.

### Half Term 3

**Pure:** binomial expansion, radians, geometric series.

**Mechanics:** connected particles, pulleys, friction, resolving forces, inclined planes.

### Half Term 4

**Pure:** trig graphs, equations and identities.

**Statistics:** sampling, location, spread, coding, representing data.

### Half Term 5

**Pure:** differentiation and integration.

**Statistics:** correlation and regression, probability.

### Half Term 6

**Pure:** numerical solutions, proof, functions.

**Statistics:** discrete probability distributions, binomial distribution, hypothesis testing.

## Year 13

### Half Term 1

**Pure:** algebraic fractions, exponentials and logarithms, numerical solutions, Newton Raphson, differentiation, functions, modulus functions, trigonometry, small angle approximations.

### Half Term 2

**Pure:** partial fraction, parametric equations, binomial expansion.

**Statistics:** regression, correlation, exponential models. Hypothesis testing, normal distribution.

### Half Term 3

**Pure:** differentiation of compound functions, product rule, quotient rule. 3D vectors.

**Mechanics:** moments, projectiles.

### Half Term 4

**Pure:** integration methods including substitution, integration by parts, numerical integration.

**Mechanics:** inclined planes.

### Half Term 5

Exam preparation.

### Half Term 6

Exam preparation.





# FURTHER MATHEMATICS - KS5

## Year 12

### Half Term 1

**Pure:** complex numbers, argand diagrams and loci.

**Matrices, linear transformation, vector equations of lines and planes.**

### Half Term 2

**Pure:** roots of quadratic and cubic equations, summation of squares and cubes.

**Mechanics:** momentum, collisions, impulse.

### Half Term 3

**Pure:** volumes of revolution, proof by induction.

**Decision:** sorting, critical path analysis, linear programming.

### Half Term 4

**Pure:** volumes of revolution, proof by induction.

**Mechanics:** work energy and power.

### Half Term 5

**Pure:** differentiation and integration, trigonometric functions.

**Decision:** route inspection, Dijkstra's Algorithm.

### Half Term 6

**Pure:** Maclaurin's series, method of differences, DeMoivre's Theorem.

**Hyperbolic functions, Polar co-ordinates.**

## Year 13

### Half Term 1

**Pure:** Improper integrals, Inverse trigonometric functions

**Mechanics:** elastic springs, Hookes Law.

### Half Term 2

**Decision:** simplex, travelling salsesman.

### Half Term 3

**Mechanics:** oblique collision.

### Half Term 4

**Decision:** two ttage method, 'Big M'.

### Half Term 5

**Exam preparation.**

### Half Term 6

**Exam preparation.**

