

## CURRICULUM CONTENT

### 1) Differentiation

- Gradient of the tangent to a curve
- Differentiation from first principles
- Differentiation of  $x^n$
- Differentiating polynomials
- Rates of change
- Tangents and normals
- Second order derivatives

### 2) Integration

- The integration process
- Using integral notation
- Finding the constant of integration

### 3) Algebra and functions

- Algebraic division
- The remainder theorem
- The factor theorem

### 4) Coordinate geometry

- Coordinate geometry of the circle
- Equation of a circle
- Translating a graph

### 5) Exponentials and logarithms

- Exponential graphs
- Logarithms
- The laws of logarithms
- Change of base and solving exponential equations

## 6) Sequences and series

- General term of a geometric series
- Sum of a geometric series
- Divergent and convergent geometric series
- Pascal's triangle
- The binomial theorem

## 7) Differentiation

- Increasing and decreasing functions
- The second derivative and curve sketching
- Practical applications

## 8) Integration

- Definite integrals
- Area under a curve
- The trapezium rule

