Autumn 1: September – October

What are we learning:

Vectors (2D)

5a. Definitions, magnitude/direction, addition and scalar multiplication.

5b. Position vectors, distance between two points, geometric problems.

Coordinate Geometry in the (x,y) plane

2a. Straight line graphs including parallel and perpendicular. Length and area problems.

2b. Circles; equations and geometric problems.

Assessments:

- Vectors assessment on 5a and 5b.
- Coordinate geometry 1 assessment on 2a
- Coordinate geometry 2 assessment on 2a and 2b

Support:

- Integral Maths
- ActiveLearn
- Showbie resources
- Year 12 drop in – Thursday afterschool in D20

Autumn 2: October – December

What are we learning:

Differentiation

6a. Definition, differentiating polynomials, second derivatives.

6b. Gradients, tangents, normal, maxima and minima

Integration

7a. Definition as opposite of differentiation. Indefinite integrals of polynomials.

7b. Definite integrals and areas under a curve.

Assessments:

- Differentiation assessment on 6a and 6b
- Integration assessment on 7a and 7b

Support:

- Integral Maths
- ActiveLearn
- Showbie resources
- Year 12 drop in – Thursday afterschool in D20

Spring 1: January – February

What are we learning:

Quantities and units in Mechanics

M1a. Introduction to mathematical modelling and standard units.

M1b. Definitions of vector and scalar quantities.

Kinematics 1 (Constant Acceleration)

M2a. Graphical representation of velocity, acceleration and displacement.

M2b. SUVAT including vertical motion under gravity.

Forces and Newton's Laws

M3a. Newton's first law. Force diagrams. Equilibrium.

Introduction to i and j.

Assessments:

- Intro to Mechanics assessment on M1a, M1b, M2a, M2b.

Support:

- Integral Maths
- ActiveLearn
- Showbie resources
- Year 12 drop in – Thursday afterschool in D20

Spring 2: February – April

What are we learning:

M3b. Newton's second and third laws including connected particles.

Kinematics 2 (Variable Acceleration)

M4. Calculus to determine rates of change in kinematics.

Logs and Exponentials

8. Exponential functions and natural logarithms.

Assessments:

- Mechanics assessment on all mechanics topics.
- Logs and Exponentials assessment on 8.

Support:

- Integral Maths
- ActiveLearn
- Showbie resources
- Year 12 drop in – Thursday afterschool in D20

Summer 1: April- May

What are we learning:

Series and Sequences

4a. Arithmetic and geometric progressions

4b. Sigma notation

4c. Recurrence and iteration

Assessments:

- No assessments

Support:

- Integral Maths
- ActiveLearn
- Showbie resources
- Year 12 drop in – Thursday afterschool in D20

Summer 2: June - July

What are we learning:
Preparing for EOY assessments.

Proof
1. Proof by deduction and contradiction

Assessments:
- End of year Assessment covering all Year 1 A-Level Maths elements.

Support:
- Integral Maths
- ActiveLearn
- Showbie resources
- Year 12 drop in – Thursday afterschool in D20