

Year 13 Mathematics Learning Programme 4

The LORIC skill focus for this LP is: INITIATIVE.

The Moral Virtues focus for this LP are: INTEGRITY and GRATITUDE.

Integrity - Having strong moral principles.

Gratitude - Feeling and expressing thanks.

What will I be learning about in this Learning Programme?

In LP3 I will be learning about locating roots using numerical methods and integrations.

Where have I seen this learning before?

Year 12: Integration of polynomials.

What could I use it for?

The knowledge and skills I will learn in this learning programme will enable me to integrate to calculate areas under any curve. This will in turn enable me to solve differential equation problems such as those used in physics and engineering.

Literacy:

- Capital letters must be used at the start of sentences and for the first letter of proper nouns
- Full stops must be used at the end of a sentence
- Question marks must be used at the end of a question
- Apostrophes should only be used for possession or omission
- Days of the week and months must be spelled correctly
- Key words must be spelled correctly

In LP4.1, I will know: 04/03/24 - (WK 1)

how to locate roots of equations using numerical methods;
how to use iteration to find roots;
how to use the Newton-Raphson process.

Key Vocabulary

Iteration

Homework

Numerical methods
Worksheet

In LP4.2, I will know: 11/03/24 - (WK 2)

how to integrate standard functions;
how to integrate functions of the form $f(ax+b)$;
how to integrate using the trigonometric identities.

Key Vocabulary

Identities

Homework

Integration
Dr Frost

In LP4.3, I will know: 18/03/24 - (WK 1)

how to apply the reverse of the chain rule;
how to integrate using substitution;
how to integrate by parts.

Key Vocabulary

Integral

Homework

Integration by Substitution
Worksheet

Extended Task.

In LP4.4, I will know: 25/03/24 - (WK 2)

how to integrate with partial fractions;
how to find areas using integration;
how to use the trapezium rule.

Key Vocabulary

Trapezium

Homework

Integration by Parts
Dr Frost

In LP4.5, I will know: 15/04/24 - (WK 1)

how to solve differential equations;
how to integrate using the limit of a sum.

Key Vocabulary

Differential

Homework

Differential Equations
Worksheet

In LP4.6, I will know: 22/04/24 - (WK 2)

how to solve problems with coordinates in 3D;
how to solve vectors problems in 3D.

Key Vocabulary

Magnitude

Homework

3D Vectors
Dr Frost

Extended Task.

In LP4.7, I will know: 29/04/24 - (WK 1)

how to solve variable acceleration problems.

Key Vocabulary

Variable

Homework

Variable Acceleration
Worksheet

In LP4.8, I will know: 06/05/24 - (WK 2)

revision of Pure, Mechanics and Statistics modules.

Key Vocabulary

Revision

Homework

Exam Practice

Resources to support learning:

Use your knowledge organisers to support with revision and recall. Here are some online resources to further support you in your Mathematics revision beyond the classroom. All weekly homework tasks area based on the exercises from the book. In addition to homework. Some useful websites are listed below:

- Online Resource for homework and exam practice: <https://www.drfrostmaths.com/>

- Topic based exam questions - <https://www.mathsgenie.co.uk/>

FFET Award Challenge for this Learning Programme:

Create a revision mind/map or poster of any of the Pure Maths chapters.

PRT Task 1

PRT Task 2