

# A Level Mathematics

## Overview

Mathematics is a key life skill; it is present in our everyday lives and yet there is a lack of drive to understand how to use it effectively. Students in this program will work with a mentor to develop their mathematical concepts, methods and skills. In doing so they will be able to recognise when mathematics can be used in their lives, interpret the relevant data and select the appropriate method with which to solve the problem. Students will practice this through rigorous problem-solving questions from a range of abstract and real-life contexts. Mentors will encourage students to communicate their results and logical reasoning effectively and through sound mathematical concepts and methodology. By the end of this program, students will have garnered the confidence to think logically and independently, consider accuracy, model situations mathematically, analyse results, and reflect on findings.

## Objectives

- Develop knowledge and understanding of mathematical principles, concepts, and methods
- Use problem solving to apply mathematics in everyday situations
- Recognise when mathematics can be used and select an appropriate method to solve the problem
- Enhance evaluative and logical thinking to interpret results in different contexts
- Devise and communicate mathematical reasoning

## Structure

- Reflect on current knowledge of the range of topics that Mathematics covers and identify strengths and weaknesses
  - Develop a personalised curriculum
- Produce a timeline to reach personal goals based on the topics covered
  - Pure Mathematics, Mechanics, Statistics and Probability
- Attempt problem solving questions from a range of contexts
  - Real-life and abstract contexts
  - Recognising the role that maths plays in our lives
  - Developing problem-solving skills
  - Communicate answers clearly and effectively
- Work with a mentor to develop data analysis skills
  - Question reliability and validity of data to improve critical thinking
  - Improve evaluative thinking
  - Consolidate presenting and interpreting results
- Exam practice
  - Past papers
  - Planning and structuring responses
  - Analysing, evaluating, and interpreting data

