

# ESSENTIAL MATHEMATICS

## WHAT TYPE OF SUBJECT IS ESSENTIAL MATHEMATICS?

Essential Mathematics is an Applied subject that contributes to the attainment of a Queensland Certificate of Education (QCE) and may contribute to the calculation of an ATAR.

## WHAT IS ESSENTIAL MATHEMATICS?

Students will benefit from studies in Essential Mathematics because they will develop skills that go beyond the traditional ideas of numeracy. This is achieved through a greater emphasis on estimation, problem-solving and reasoning, which develops students into thinking citizens who interpret and use mathematics to make informed predictions and decisions about personal and financial priorities. Students will see mathematics as applicable to their employability and lifestyles and develop leadership skills through self-direction and productive engagement in their learning. They will show curiosity and imagination and appreciate the benefits of technology. Students will gain an appreciation that there is rarely one way of doing things and that real-world mathematics requires adaptability and flexibility.

## WHERE DOES THE STUDY OF ESSENTIAL MATHEMATICS LEAD?

A course of study in Essential Mathematics can establish a basis for employment in the fields of trade, industry, business and community services. Students will learn within a practical context related to general employment and successful participation in society, drawing on the mathematics used by various professional and industry groups.

## WHAT IS THE PREREQUISITE KNOWLEDGE FOR ESSENTIAL MATHEMATICS IN YEAR 11?

The following is a list of some prerequisite knowledge that must be learnt or revised and maintained from Year 10 as required. This content is covered in Year 10 Mathematics and/or Year 10 Foundation Mathematics:

- Recall concepts of number and its operations, percentages, money, rates, and ratios
- Read and use graphs and scales
- Recall concepts of probability, data collection, and statistical data representations
- Use a scientific calculator and other technology where appropriate
- Substitute numbers into formulas
- Translate word problems to mathematical form

All of the content from Units 1 and 2 is considered prerequisite knowledge for Units 3 and 4.

## WHAT DO I STUDY?

The major domains of mathematics in Essential Mathematics are: Number, Data and Graphs; Money, Travel and Data; Measurement, Scales and Data; Graphs, Chance and Loans. The topics of study are organised into units with the fundamental topic, Calculations, embedded in each topic. Students will study at least one full unit each semester, set out as following:

**Unit 1:** Number, Representing Data, Graphs

**Unit 2:** Managing Money, Time & Motion, Data Collection

**Unit 3:** Measurement, Scales, Plans & Models, Summarising, & Comparing Data

**Unit 4:** Bivariate Graphs, Probabilities & Relative Frequencies, Loans, & Compound Interest.

## HOW AM I ASSESSED?

In Unit 1 and 2, all assessment is formative. However, the assessment in Units 1 and 2 models that which the students will encounter in Units 3 and 4. In Unit 3 and 4, each assessment's mark contributes to the student's overall grade in the subject (A to E) and potentially the ATAR calculation.

Tests will comprise short response questions that are simple familiar, complex familiar and complex unfamiliar in nature. Problem-solving and modelling tasks will be based on answering an inquiry question in which students will formulate, solve, evaluate and communicate their response, showcasing their knowledge of mathematical concepts. A grade (A to E) will be awarded for each assessment item.

The formative internal assessment for Units 1 and 2 comprise:

- A problem-solving and modelling task (25% weighting, Unit 1)
- An examination (25% weighting, Unit 1) that will mimic the common internal assessment, which is an examination developed by QCAA but invigilated and marked at school
- A problem-solving and modelling task (25% weighting, Unit 2)
- A school-based examination (25% weighting, Unit 2)

The summative internal and external assessment for Units 3 and 4 comprise:

- One problem-solving and modelling task (25% weighting, Unit 3)
- A common internal assessment: an examination developed by QCAA but invigilated and marked internally (25% weighting, Unit 3)
- One problem-solving and modelling task (25% weighting, Unit 4)
- A school-based examination (25% weighting, Unit 4)

## WHAT IS THE LEVEL OF TECHNOLOGY REQUIRED IN THIS SUBJECT?

Students will require a scientific calculator for their examinations and Ti-Nspire CX software on their computers.