

**Penola**  
CATHOLIC COLLEGE  
EST. 1995

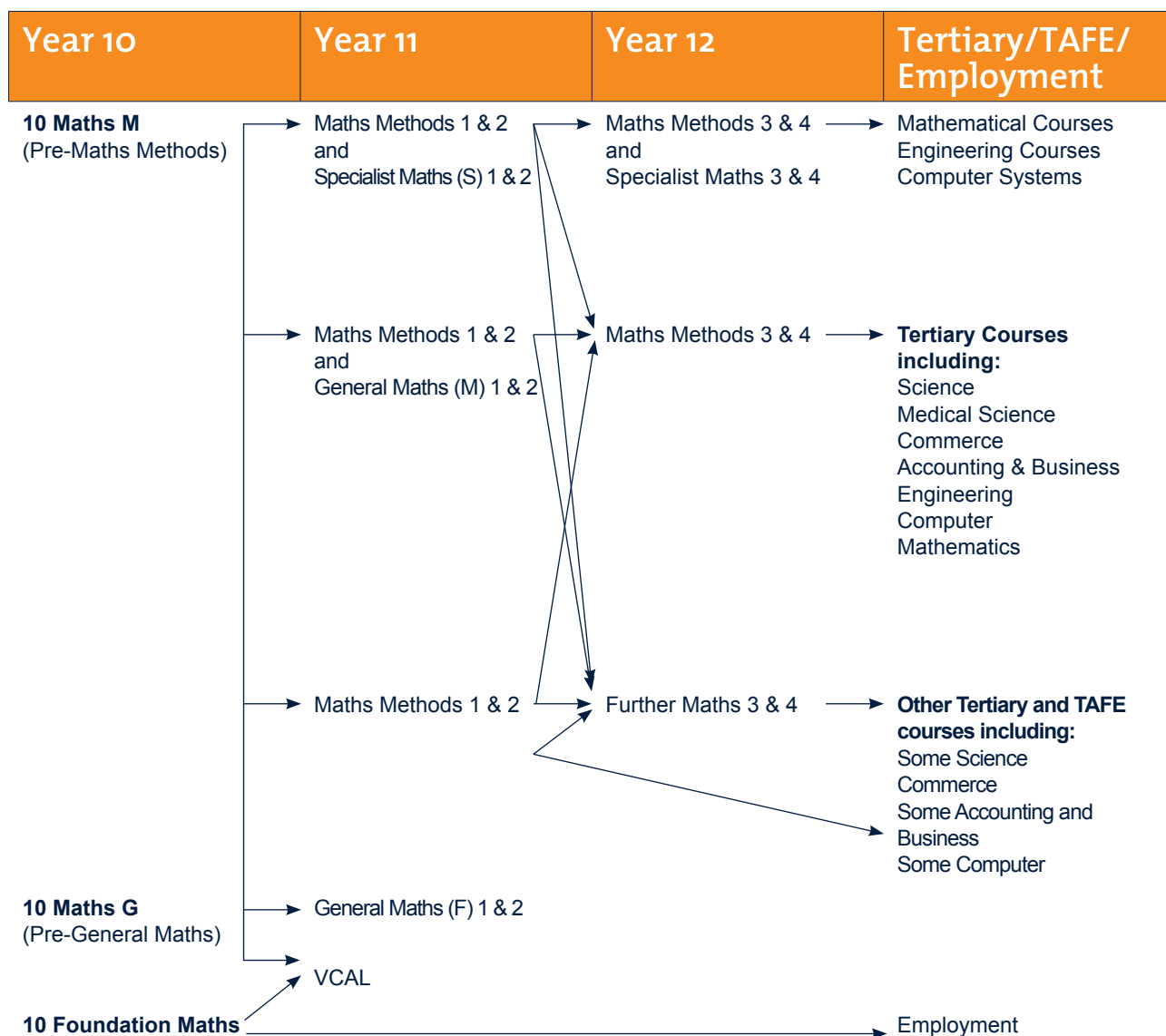
# MATHEMATICS

Mathematical Methods  
General Mathematics  
Specialist Mathematics  
Further Mathematics



# MATHEMATICS PATHWAYS

Which Maths should students choose?  
Where will these units lead students?



Although it is possible to prepare for Maths Methods 3 & 4 by studying only Maths Methods Units 1 & 2, a firmer basis for study is obtained by also studying General Mathematics. Studying Maths Methods Units 1 & 2 only in Year 11 may be suitable for students who have achieved an average of a "B" grade in Year 10 Mathematics and who have space for only one Maths subject in their Year 11 course.



# MATHEMATICS PATHWAYS

## Units: 1 and 2

### Mathematical Methods Units 1 & 2

These units are designed to prepare you for Maths Methods 3 & 4 and later for tertiary studies including most Science or Economics Courses. Although it is possible to prepare for Maths Methods 3 & 4 by studying only Maths Methods Units 1 & 2, a much firmer basis for study is obtained by also studying General Mathematics.

Studying Maths Methods Units 1 & 2 only in Year 11 is not normally recommended, but may be suitable for students who have achieved an average B grade in Year 10 Mathematics and who have space for only one Mathematics subject in their Year 11 course.

### Specialist Mathematics (S) Units 1 & 2

These units must be taken in conjunction with Maths Methods 1 & 2. Together with Maths Methods 1 & 2 they are designed to prepare you for all Year 12 Maths, in particular Maths Methods 3 & 4 and Specialist Maths 3 & 4, and later for tertiary studies including Mathematics and Engineering.



### General Mathematics (M) Units 1 & 2

These units must be taken in conjunction with Maths Methods 1 & 2. Together with Maths Methods 1 & 2, they are designed to prepare you for Maths Methods 3 & 4 and/or for Further Maths 3 & 4.

### General Mathematics (F) Units 1 & 2

These units are designed as preparation for Further Maths 3 & 4 and later for some Tertiary or TAFE courses (generally non-science studies) and to prepare students for employment.

## Units: 3 and 4

### Mathematical Methods Units 3 & 4

These units follow on directly from Mathematical Methods 1 & 2, they are intended to provide a suitable foundation for tertiary studies including most Science and some Economics Courses.

You may take these units on their own or with either Further Mathematics 3 & 4 or Specialist Mathematics 3 & 4.

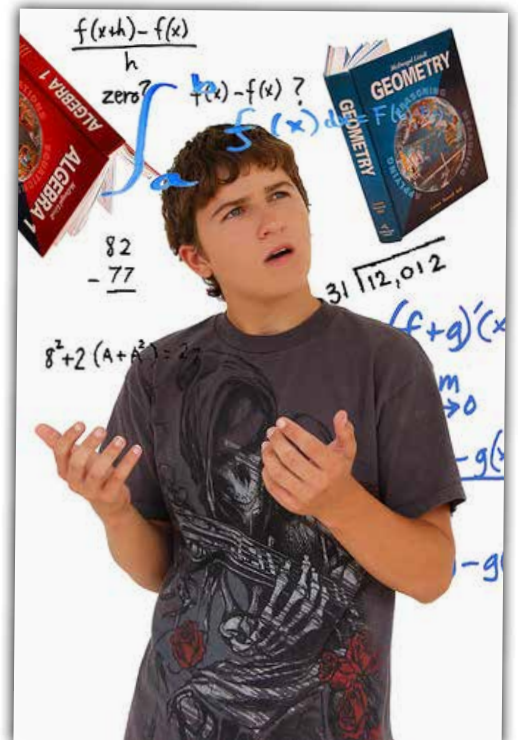
### Specialist Mathematics Units 3 & 4

These units are designed to prepare you for tertiary courses in Mathematics and Engineering. You must take these units in conjunction with Mathematical Methods 3 & 4.

### Further Mathematics 3 & 4

These units are designed to follow on directly from General Mathematics 1 & 2. They are intended to provide a broad base of Mathematical experience which is considered suitable for employment or tertiary studies where mathematics is a supporting subject but not the main focus of the course.

You may take these units on their own or with Mathematical Methods 3 & 4.





# MATHEMATICS

This study is designed to provide access to worthwhile and challenging mathematical learning in a way which takes into account the needs and aspirations of a wide range of students. It is also designed to promote students awareness of the importance of mathematics in everyday life in a technological society, and confidence in making effective use of mathematical ideas, techniques and processes.

## Units: 1 and 2

### Mathematical Methods Units 1 & 2

- Quadratic functions
- Probability
- Cubic functions
- Rates of change
- Logarithmic and exponential functions
- Calculus
- Circular functions
- Advanced functions

### Specialist Mathematics (S) Units 1 & 2

(These units can only be taken in conjunction with Maths Methods Units 1 & 2)

- Algebra techniques
- Applications of trigonometry
- Complex numbers
- Vectors
- Sampling
- Advanced algebra
- Kinematics and statistics
- Graphing techniques

### General Mathematics (M) Units 1 & 2

(These units must be taken in conjunction with Maths Methods Units 1 & 2)

- Algebra techniques
- Descriptive Statistics
- Linear functions and graphs
- Measurement
- Matrices
- Trigonometry
- Bivariate data
- Sequences and series

### General Mathematics (F) Units 1 & 2

- Arithmetic techniques
- Algebraic techniques
- Descriptive statistics
- Measurement
- Linear functions and graphs
- Trigonometry
- Bivariate data
- Sequences and Series

#### Assessment: Units 1 & 2

For each unit the School-Assessed Coursework Tasks are:

- Four topic tests
- Application task
- Problem-solving task
- Examination

## Units: 3 and 4

### Mathematical Methods Units 3 & 4

- Polynomial functions
- Exponential and logarithmic functions
- Circular functions
- Transformations of functions
- Differentiation
- Applications of differentiation
- Integral calculus
- Discrete random variables
- Continuous random variables
- Sampling and estimation

#### Assessment: Unit 3 & 4

Unit 3 School-Assessed Coursework: 20%

- One application task
- Unit 4 School-Assessed Coursework: 14%
- Two problem-solving tasks

#### Units 3 & 4:

Exam 1: 22%  
Exam 2: 44%

### Specialist Mathematics Unit 3 & 4

- Vectors
- Complex Numbers
- Co-ordinate Geometry and Sketch Graphs
- Circular Functions
- Antidifferentiation
- Integration
- Differential Equations
- Kinematics
- Vector Calculus
- Dynamics
- Sampling

#### Assessment: Unit 3 & 4

Unit 3 School-Assessed Coursework: 14%

- One application task

Unit 4 School-Assessed Coursework: 20%

- Two problem-solving tasks

#### Units 3 & 4:

Exam 1: 22%  
Exam 2: 44%

### Further Mathematics Unit 3 & 4

Core:

- Data Analysis
- Recursion and Financial Modeling

Module: Matrices

Module: Geometry and Measurements

#### Assessment: Unit 3 & 4

Unit 3 School-Assessed Coursework: 20%

- One application task and one problem-solving task

Unit 4 School-Assessed Coursework: 14%

- Two problem-solving tasks

#### Units 3 & 4:

Exam 1: 33%  
Exam 2: 33%