

MATHEMATICS

MATHEMATICS TWO SEMESTERS

In Level 10, students extend their use of mathematical models to a wide range of familiar and unfamiliar contexts, involving the use of all types of real numbers. They recognise the role of logical argument and proof in establishing mathematical propositions. Students apply mental, written or technology-assisted forms of computation as appropriate, and routinely use estimation to validate or provide bounds for their answers.

The content of the curriculum is established by the Victorian Curriculum Level 10 standards.

This course will be an adequate preparation for all VCE Mathematics.

Victorian Curriculum Strands:

- **Number and Algebra:** Financial Mathematics – percentages, simple interest, compound interest; Linear relations and graphs– solving equations, linear graphs, applications to problem solving, simultaneous equations; Indices – index laws, negative indices, scientific notation; Quadratics - factorising, solving equations, applications to problem solving
- **Measurement and Geometry:** Measurement – length, applications of Pythagoras’ theorem, area, surface area of prisms and cylinders, volume of prisms and cylinders; Trigonometry – finding an unknown length or angle in a right-angled triangle, bearings; Geometry – angles, congruent figures, similar figures, applications to problem solving
- **Statistics and Probability:** Statistics – histograms, stem and leaf plots, box plots, scatter plots, line of best fit; Probability – Venn diagrams, two-way tables, conditional probability, independent events, tree diagrams

Assessment:

A range of assessment procedures is used, including:

- Topic tests at the end of each unit of work
- Two end-of-semester examinations, technology-free and technology-rich

MATHEMATICS

ADVANCED MATHEMATICS TWO SEMESTERS

In Level 10, students extend their use of mathematical models to a wide range of familiar and unfamiliar contexts, involving the use of all types of real numbers. They recognise the role of logical argument and proof in establishing mathematical propositions. Students apply mental, written or technology-assisted forms of computation as appropriate, and routinely use estimation to validate or provide bounds for their answers.

The curriculum also provides students, as life-long learners, with the basis on which further study and research in mathematics and applications in many other fields are built. This course is designed for students who enjoy mathematics, are confident in algebraic manipulations and who are considering studying VCE Mathematical Methods in Years 11 and 12. Students will cover content areas as established by the Victorian Curriculum Level 10 standards.

Students are selected for this course by invitation only.

Victorian Curriculum Strands:

- Number and Algebra: Linear relations and graphs – solving equations, simultaneous equations, sketching graphs, finding equations of lines, midpoint, distance between points, applications to problem solving; Indices and surds – index laws, negative and rational indices, irrational numbers, simplifying surds, rationalising denominator; Quadratics – factorising using different techniques, solving equations, applications to problem solving; Parabolas – sketching graphs, identifying turning points and intercept values, applications to problem solving; Polynomials – sketching, factorising; Non-linear graphs.
- Measurement and Geometry: Measurement – surface area and volume of prisms, cones and spheres, comparing area and volume of similar figures; Trigonometry – applications of trigonometric ratios, bearings, Sine rule, Cosine rule, unit circle; Geometry – similar figures, congruent figures, circle theorems
- Statistics and Probability: Probability – independent events, conditional probability, two-way tables, venn diagrams; Statistics - histograms, stem and leaf plots, box plots, scatter plots, lines of best fit, bivariate data

Assessment:

A range of assessment procedures is used, including:

- Topic tests at the end of each unit of work
- Two end-of-semester examinations, technology-free and technology-rich

MATHEMATICS

FOUNDATION MATHEMATICS TWO SEMESTERS

Mathematics pervades all aspects of our lives – at home, as citizens and in the workplace. Mathematics studies the patterns between numbers, in space, in science, in computers and in imagination.

Mathematics helps students to acquire the skills and knowledge to deal confidently and competently with daily life – for employment, further study and interest. The learning of Mathematics is supported by the use of technology.

The Mathematics-Foundation course aims to:

- Develop the numeracy skills required for everyday life
- Consolidate and develop the basic skills of algebra, measurement, geometry and probability at a modified pace

This course will be an adequate preparation for VCE Foundation Mathematics Units 1 and 2 or for VCAL Numeracy. Students are selected for this course by invitation only

Victorian Curriculum Strands:

- Number and Algebra: Financial Mathematics – percentages, simple interest, compound interest; Linear relations and graphs – solving equations, linear graphs, applications to problem solving;
- Measurement and Geometry: Measurement – length, applications of Pythagoras' theorem, area, surface area of prisms and cylinders, volume of prisms and cylinders; Trigonometry – finding an unknown length or angle in a right-angled triangle, bearings
- Probability and Statistics: Statistics – histograms, stem and leaf plots, box plots, scatter plots; Probability – Venn diagrams, two-way tables, conditional probability, independent events, tree diagrams

Assessment:

A range of assessment procedures is used, including:

- Topic tests at the end of each unit of work
- One end-of-semester examination