

Year 10 Mathematics 2019 Index



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Length: 2 Semesters

Assumed Knowledge:

Year 9 Mathematics

Entry into this course occurs only after consultation between the student, parent and Mathematics Coordinator.

Description:

This is a course in which students will be studying the same mathematical content as the other Year 10 Mathematics course, but will initially focus on gaining a C level. The class is usually much smaller than the other classes and this will allow for your child to get the instruction and help that suits them best, allowing extra time for assistance from the teacher in order for them to gain a better understanding of the concepts taught, hence allowing them to improve their numeracy and mathematical skills. This course provides students with the opportunity for greater success both now and later in their study of Mathematics and Numeracy.

The Numeracy course addresses the Australian Curriculum Mathematics content strands of:

- Number and Algebra
- Measurement and Geometry
- Statistics and Probability

For each of the content strands, the course addresses a student's proficiency of their *Understanding, Fluency, Problem Solving and Reasoning*. The proficiencies reinforce the significance of working mathematically within the content and describe how the content is explored or developed. They provide the language to build in the developmental aspects of the learning of mathematics.

By the end of Year 10, students recognise the connection between simple and compound interest. They solve problems involving linear equations and inequalities. They make the connections between algebraic and graphical representations of relations. Students solve surface area and volume problems relating to composite solids. They recognise the relationships between parallel and perpendicular lines. Students apply deductive reasoning to proofs and numerical exercises involving plane shapes. They compare data sets by referring to the shapes of the various data displays. They describe bivariate data where the independent variable is time. Students describe statistical relationships between two continuous variables. They evaluate statistical reports.

Students expand binomial expressions and factorise monic quadratic expressions. They find unknown values after substitution into formulas. They perform the four operations with simple algebraic fractions. Students solve simple quadratic equations and pairs of simultaneous equations. They use triangle and angle properties to prove congruence and similarity. Students use trigonometry to calculate unknown angles in right-angled triangles. Students list outcomes for multi-step chance experiments and assign probabilities for these experiments. They calculate quartiles and inter-quartile ranges.

A scientific calculator is essential for this course.

Assessment Details:

Any of the following may contribute to the assessment: skills assessment tasks, projects, directed investigations, assignments, writing exercises, journal, work folio, oral reports.

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Length: 2 Semesters

Assumed Knowledge:

Year 9 Mathematics

Description:

The Year 10 Mathematics courses address the **compulsory** Australian Curriculum Mathematics content strands of:

- Number and Algebra
- Measurement and Geometry
- Statistics and Probability

This subject will prepare students for Stage 1 and Stage 2 Mathematical Applications, but it will **not** adequately prepare students for Stage 1 Mathematics or Stage 2 Mathematical Studies/Specialist Mathematics. Students intending to follow this path should select Advanced Mathematics.

For each of the content strands, the course addresses a student's proficiency of their *Understanding, Fluency, Problem Solving and Reasoning*. The proficiencies reinforce the significance of working mathematically within the content and describe how the content is explored or developed. They provide the language to build in the developmental aspects of the learning of mathematics.

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A scientific calculator is essential for this course.

Assessment Details:

Any of the following may contribute to the assessment: skills assessment tasks, projects, directed investigations, assignments, writing exercises, journal, work folio, oral reports.

For more information on Australian Curriculum please visit:

<http://www.australiancurriculum.edu.au>

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Length: 1 Semester

Assumed Knowledge:

Year 10 Mathematics (Semester 1). This course is studied concurrently with Semester 2 Year 10 Mathematics.

Description:

The Year 10 Mathematics 3A content is **optional** and is intended for students who require more content to enrich their mathematical study whilst completing the common Year 10 content. It is NOT anticipated that all students will attempt the 10A content, but is necessary for students intending to pursue Stage 1 Mathematics 1, 2 and 3 and Stage 2 Mathematical Studies and/or Specialist Mathematics. A selection of topics from the 10A Australian Curriculum will be completed according to the needs of the students.

Topics likely to be undertaken in Advanced Mathematics include:

- Exponential and Logarithmic Functions
- Polynomials and applying the factor and remainder theorems
- Describing, Sketching and Interpreting parabolas, hyperbolas, polynomials and circles
- Geometric Proofs
- Using the sine and cosine rules
- An introduction to the unit circle
- Solving trigonometric equations
- Pythagoras and 3-D problems
- Comparing Data Sets

A scientific calculator is essential for this course.

Assessment Details:

Any of the following may contribute to the assessment: skills assessment tasks (tests), investigations, assignments, writing exercises, journal, work folio, oral reports.

Future:

Stage 1 Mathematics (1, 2 and 3) followed by Stage 2 Mathematical Methods, Stage 2 Specialist Mathematics or Stage 2 Mathematical Applications.

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