



WAGIN DISTRICT HIGH SCHOOL SEMESTER OUTLINE

Year 10 Semester 1 2017 Mathematics

COURSE OUTLINE

Mathematics this semester will cover mathematical topics set out by the Australian Curriculum. The semester will cover Number and Algebra, Measurement and Geometry as well as Statistics and Probability. These topics will involve a 3 or 4 week block of work on a topic relevant to the outcomes.

COURSE OUTCOMES

The topics covered this semester will meet the Australian curriculum standards in the following topics.

| Number and algebra |
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| Real numbers |
| No specific statements for this level |
| Money and financial mathematics |
| Connect the compound interest formula to repeated applications of simple interest using appropriate digital technologies |
| Patterns and algebra |
| Factorise algebraic expressions by taking out a common algebraic factor |
| Simplify algebraic products and quotients using index laws |
| Apply the four operations to simple algebraic fractions with numerical denominators |
| Expand binomial products and factorise monic quadratic expressions using a variety of strategies |

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| Substitute values into formulas to determine an unknown |
| Linear and non-linear relationships |
| Solve problems involving linear equations, including those derived from formulas |
| Solve linear inequalities and graph their solutions on a number line |
| Solve linear simultaneous equations, using algebraic and graphical techniques including using digital technology |
| Solve problems involving parallel and perpendicular lines |
| Explore the connection between algebraic and graphical representations of relations such as simple quadratics, circles and exponentials using digital technology as appropriate |
| Solve linear equations involving simple algebraic fractions |
| Solve simple quadratic equations using a range of strategies |
| Measurement and Geometry |
| Using units of measurement |
| Solve problems involving surface area and volume for a range of prisms, cylinders and composite solids |
| Geometric reasoning |
| Formulate proofs involving congruent triangles and angle properties |
| Apply logical reasoning, including the use of congruence and similarity, to proofs and numerical exercises involving plane shapes |
| Pythagoras and trigonometry |
| Solve right-angled triangle problems including those involving direction and angles of elevation and depression |

TASKS

Each section of work may involve

- End of topic Test
- Assignment
- Project
- Homework
- Revision Exercises

TIME LINE

This time line is a guide to the topics covered in each block

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|----------------|--|----------------------|
| Term 1 | Number | |
| Week 1 | Indices and surds Addition and Subtracting surds | |
| Week 2 | Multiplying and dividing surds Binomial Products, rational denominators | Investigation |
| Week 3 | Index laws Negative indices | |
| Week 4 | Scientific Notation, Rational Indices. Exponential equations | Test |
| Week 5 | Linear relations Reviewing algebra, linear equations | Investigation |
| Week 6 | Graphing and solving linear equations. Length and midpoint of a line segment. Perpendicular and parallel lines. | |
| Week 7 | Simultaneous equations substitution and elimination | Test |
| Week 8 | Geometry, Congruent Triangles and parallelograms. Similar figures and proofs | Investigation |
| Week 9 | Similar figures and triangles | |
| Week 10 | Circles and chords properties | Test |

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| Term 2 Week 1 | Trigonometry Pythagoras' Theorem and review of length. | |
| Week 2 | Application of Pythagoras | Investigation |
| Week 3 | Area and surface area of prisms, cylinders, pyramids and cones. | |
| Week 4 | Volume of prisms, cylinders, pyramids, cones and spheres | Test |
| Week 5 | Trigonometry ratios finding angles and apps in 2D. | |
| Week 6 | Bearings and applications in 3D | Investigation |
| Week 7 | Obtuse angles and exact values | |
| Week 8 | Sine Rule Cosine Rule | Investigation |
| Week 9 | Area of triangles | |
| Week 10 | The four quadrants and the graphs of trigonometric functions. | Test |

ASSESSMENT BREAKDOWN

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| CHAPTER TESTS (5) | 55% |
| ASSIGNMENTS/INVESTIGATIONS (6) | 35% |
| HOMEWORK /REVISION EXERCISES | 10% |