Year 9 Mathematics

Achievement
Achievement standard: Year 9

Subject achievement standard
By the end of Year 9,

Assessment Criteria
Using the marking guide provided, an overall level of achievement in this subject is determined by the teacher's judgment of the evidence presented in students' summative assessment. All assessment unless noted on task sheet completed by Math's student's assess the following criteria:

- Understanding and fluency
- Problem-solving and reasoning

Delivery (mode, time requirements, lessons)
Students have access to live sessions each week. Lessons are delivered via our learning management system. Students are also expected to undertake independent study to complete tasks and assessments in accordance with the Work Rate Calendar.

Student Requirements
Computer, access to internet, email, printer, scanner, telephone or headset with microphone, audio visual software/devices, scientific calculator, exercise book, stationery.

Year 9 Mathematics (Semester 1)

Units and Learning Experiences, Summative Assessment, Criteria Assessed, Approximate timing/due date of Summative Assessment		
Semester 1	Term 1	**Unit 1A** **Using units of measurement** Calculate the surface area and volume of right prisms, cylinders and composite shapes apply reasoning for real objects collected by the students. Calculate and interpret absolute, relative and percentage errors in measurements, recognising that all measurements are estimates
		Unit 1B **Algorithms, Ratio & Scale** Design, use and test algorithms based on geometric constructions or theorems. Apply the enlargement transformation to images of shapes and objects and interpret results. Solve problems involving ratio, similarity and scale in two-dimensional situations. Use mathematical modelling to solve practical problems involving direct proportion, ratio and scale, evaluating the model and communicating their methods and findings.
		Summative Assessment, due date: • Assignment Unit 1 (Week 5) • Supervised Exam Unit 2 (Week 9)
	Term 2	**Unit 2A** **Pythagoras & Trigonometry** Apply Pythagoras' Theorem to check if a triangle is acute, right or obtuse, determine unknown side lengths of right-angled triangles, solve problems involving right-angled triangles, apply naming conventions for sides of right-angled triangles, use similarity to investigate the constancy of the sin, cos and tan ratios, investigate patterns in trigonometric ratios, calculate trigonometric ratios using known angle or side length values, calculate unknown side lengths in right-angled triangles, solve problems using trigonometry, and calculate unknown angles in right-angled triangles.
		Unit 2B **Indices and Scientific Notation** Express numbers using scientific notation and perform operations using index laws. Extend and apply the exponent laws with positive integers to variables. Express small and large numbers in scientific notation.
		Summative Assessment, due date: • Supervised Exam Unit 3 (Week 5) • Supervised Exam Unit 4 (Week 9)

Year 9 Mathematics (Semester 2)

Units and Learning Experiences, Summative Assessment, Criteria Assessed, Approximate timing/due date of Summative Assessment		
Semester 2	Term 3	**Unit 3A** **Linear Functions** Use mathematical modelling to solve problems involving change in financial and other applied contexts, choosing to use linear functions. Describe the effects of variation of parameters on functions and relations, using digital tools, and make connections between their graphical and algebraic representations.
		Unit 3B **Quadratic Functions** Expand binomial products, and factorise monic quadratic expressions. Graph quadratic functions and solve monic quadratic equations with integer roots algebraically. Use mathematical modelling to solve problems involving change in financial and other applied contexts, choosing to use linear and quadratic functions.
		Summative Assessment, due date: • Assignment Unit 5 (Week 5) • Supervised Exam Unit 6 (Week 9)
	Term 4	**Unit 4A** **Statistics** Compare and analyse the distributions of multiple numerical data sets, choose representations, describe features of these data sets using summary statistics and the shape of distributions, and consider the effect of outliers. Explain how sampling techniques and representation can be used to support or question conclusions or to promote a point of view.
		Unit 4B **Probability** Determine sets of outcomes for compound events and represent these in various ways. Assign probabilities to the outcomes of compound events. Design and conduct experiments or simulations for combined events using digital tools.
		Summative Assessment, due date: • Supervised Exam Unit 7 (Week 3) • Supervised Exam Unit 8 (Week 8)

Disclaimer All of the above information is accurate at the time of development.