

Year 8 Mathematics

Achievement

By the end of Year 8, students solve problems that relate to financial situations. They interpret their decisions to make financial decisions. Students calculate basic probabilities and list the outcomes for two-step experiments and assign probabilities to those outcomes. They solve linear equations algebraically and apply index laws to express numbers in index form. Students will solve problems which utilise the concepts of perimeter and area. They use several techniques to for collecting data. Students make sense of the mean and median in distributions. They explore the effect of outliers on the distribution. Students will plot points on the Cartesian plane and determine the gradient and mid-point of the line segment. They sketch linear relations and solve problems from graphical representations.

Students calculate the areas of shapes and the volume and surface area of right prisms and cylinders. They will explore congruence and identify the effect of reflections, enlargements, rotations and translations on the shape and size on plane shapes. Students will develop a linear relationship from data derived from real life contexts. They will write and manipulate algebraic expressions and solve algebraic equations.

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 two 45 minute scheduled lessons 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 8 Mathematics (Semester 1)

Units and Learning Experiences, Summative Assessment, Criteria Assessed, Approximate timing/due date of Summative Assessment		
Semester 1	Term 1	<p>Unit 1 Number and place value Represent, compare and order integers, and solve problems involving the four operations and rational numbers.</p> <p>Financial mathematics Make connections between percentages, fractions and decimals and apply this to percentage increase or decrease situations, and problem solve in a range of contexts including financial situations.</p>
		<p>Unit 2 Real numbers Identify terminating and recurring decimals, link fractions to terminating and recurring decimals and explore irrational numbers in relation to Pi.</p> <p>Chance Describe and calculate the probability of 'and', 'or', and 'not' events, represent events in Venn diagrams and two-way tables and solve related problems, identify complementary events and use the sum of probabilities to solve problems.</p>
		<p>Summative Assessment, due date:</p> <ul style="list-style-type: none"> • Short answer questions (Week 5) • Written Task (Week 10)
	Term 2	<p>Unit 3 Number and place value Express numbers in index notation, establish the index laws with whole number bases and positive integral indices.</p> <p>Patterns and algebra Expand and factorise algebraic expressions.</p>
		<p>Unit 4 Using units of measurement Convert units of measure, revise perimeter and area of parallelograms and triangles, develop formulas for rhombuses, kites trapeziums and circles, calculate the perimeter and area of rhombuses, kites trapeziums and circles, problem solve and reason involving perimeter, circumference and area.</p>
		<p>Summative Assessment, due date:</p> <ul style="list-style-type: none"> • Short answer questions (Week 5) • Short answer questions (Week 10)

Year 8 Mathematics (Semester 2)

Units and Learning Experiences, Summative Assessment, Criteria Assessed, Approximate timing/due date of Summative Assessment	
Semester 2	Term 3
	<p>Unit 5 Data representation and interpretation Collect, organise and display data, interpret data displayed in tables and graphs, connect samples and populations, explore the effect of sample size, calculate measures of centrality, identify outliers and their effect on measures of centrality, identify sources of bias and apply this knowledge to make hypotheses and support conclusions. Wherever possible, this unit will focus on comparative statistics. The emphasis is on integrating skills and procedures into a single process to reach evidence-based conclusions.</p>
	<p>Unit 6 Using units of measurement Solve time duration problems, 12 and 24 time formats, within a time zone. Linear and non-linear relationships Model situations involving proportional relationships, solve a range of problems involving rates and ratios, interpret, model and formulate patterns and relationships, represent patterns and relationships as rules, functions, tables and graphs and solve linear equations using graphical techniques.</p>
	<p>Summative Assessment, due date:</p> <ul style="list-style-type: none"> • Exam (Week 5) • Exam (Week 10)
Semester 2	Term 4
	<p>Unit 7 Linear and non-linear relationships Apply number laws to algebraic expressions & equations, expand & factorise algebraic expressions, solve simple linear equations algebraically & graphically, connect patterns, linear functions, tables of values, graphs & worded statements, plot coordinates on the Cartesian plane & solve problems Geometric reasoning Revise angle properties (co-interior, corresponding, alternate & vertically opposite), explore congruence, establish & apply the congruence tests (SAS, AAS, SSS, RHS), extend congruence of triangles to identify the properties of quadrilaterals & solve problems using the properties of congruent figures, reasoning & generalisations.</p>
	<p>Unit 8 Using units of measurement Develop formulas for volume and capacity of rectangular and triangular prisms, solve volume problems involving rectangular and triangular prisms and convert units of measurement Geometric reasoning Apply understanding and reasoning of area, congruence and plane shapes to develop properties of quadrilaterals.</p>
	<p>Summative Assessment, due date:</p> <ul style="list-style-type: none"> • Short answer questions, Exam, Criteria: Understanding & Fluency, Problem solving, Reasoning (Week 8)

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