

**Year Level: 9**

**Subject: Mathematics**

<b>Week</b>	<b>Unit</b>	<b>Learning Focus</b>	<b>Victorian Curriculum</b>
Term 1 1 - 4	Pythagoras' Theorem	Understanding and applying Pythagoras' Theorem.  Finding the hypotenuse of a right-angled triangle.  Finding a shorter side of a right-angled triangle.	Investigate Pythagoras' Theorem and its application to solving simple problems involving right angled triangles. (VCMMG318)
5-8	Algebra	Distributive law.  Expand single and double brackets.	Apply the distributive law to the expansion of algebraic expressions, including binomials, and collect like terms where appropriate. (VCMNA306)  Apply set structures to solve real-world problems. (VCMNA307)
9 - 10	Financial Mathematics	Learn about simple interest and solve related problems.	Solve problems involving simple interest. (VCMNA304)
Term 2 1 - 3	Probability	Theoretical probability.  Experimental probability.  Relative frequencies.  Two step chance experiments.	List all outcomes for two-step chance experiments, both with and without replacement using tree diagrams or arrays. Assign probabilities to outcomes and determine probabilities for events. (VCMSP321)  Calculate relative frequencies from given or collected data to estimate probabilities of events involving 'and' or 'or'. (VCMSP322)  Investigate reports of surveys in digital media and elsewhere for information on how data were obtained to estimate population means and medians. (VCMSP323)
4 - 5	Indices, Integers and Scientific Notation	Extend and apply the index laws to variables, using positive integer indices and the zero index.  Apply index laws to numerical expressions with integer indices.  Apply index laws to variables.  Express numbers in scientific notation.	Apply index laws to numerical expressions with integer indices. (VCMNA302)  Extend and apply the index laws to variables, using positive integer indices and the zero index. (VCMNA305)  Express numbers in scientific notation. (VCMNA303)
6-7	Geometry	Understand the characteristics of similar triangles and use ratio and scale factors to help find side lengths of similar figures.	Use the enlargement transformation to explain similarity and develop the conditions for triangles to be similar. (VCMMG316)  Solve problems using ratio and scale factors in similar figures. (VCMMG317)

8 – 10	Trigonometry	<p>Understanding Trigonometry.</p> <p>Using Trigonometry to find side lengths and angles of right angled triangles.</p>	<p>Use similarity to investigate the constancy of the sine, cosine and tangent ratios for a given angle in right-angled triangles. (VCMMG319)</p> <p>Apply trigonometry to solve right-angled triangle problems. (VCMMG320)</p>
Term 3 1 - 5	Linear and Non Linear Relationships	<p>Understanding simple equations, solving equations with brackets and solving equations with pronumerals on both sides.</p> <p>Finding a midpoint of a line segment on a graph.</p> <p>Sketch linear equations using different methods.</p> <p>Graph non-linear relationships.</p>	<p>Find the distance between two points located on a Cartesian plane using a range of strategies, including graphing software. (VCMNA308)</p> <p>Find the midpoint and gradient of a line segment (interval) on the Cartesian plan using a range of strategies, including graphing software. (VCMNA309)</p> <p>Sketch linear graphs using the coordinates of two points and solve linear equations. (VCMNA310)</p> <p>Graph simple non-linear relations with and without the use of digital technologies and solve simple related equations. (VCMNA311)</p>
6 – 10	Statistics	<p>Analyse data in a back-to-back stem and leaf plot.</p> <p>Create histograms and describe and comment on the shape of the graph.</p> <p>Analyse and compare data displays using appropriate statistics.</p>	<p>Identify everyday questions and issues involving at least one numerical and at least one categorical variable, and collect data directly from secondary sources. (VCMSP324)</p> <p>Construct back-to-back stem and leaf plots and histograms and describe data, using terms including 'skewed', symmetric' and bi modal'. (VCMSP325)</p> <p>Compare data displays using mean, median and range to describe and interpret numerical data sets in terms on location (centre) and spread. (VCMSP326)</p>
Term 4 1 – 5	Measurement	<p>Surface area and volume of cylinders, rectangular and triangular prisms.</p>	<p>Calculate the areas of composite shapes. (VCMMG312)</p> <p>Calculate the surface area and volume of cylinders and solve related problems. (VCMMG313)</p> <p>Solve problems involving the surface area and volume of right prisms. (VCMMG314)</p> <p>Investigate very small and very large time scales and intervals. (VCMMG315)</p>
6 – 9	Rates and Ratios	<p>Understanding direct proportion and solve simple rate problems.</p>	<p>Solve problems involving direct proportion. Explore the relationship between graphs and equations corresponding to simple rate problems. (VCMNA301)</p>