Year Level: 10			
Subject: Mathematics			

Week	Unit	Learning Focus	Victorian Curriculum
Term 1 1 - 3	Probability	Define sample space, mutually exclusive, Complementary, odds. Draw and analyse Venn and Tree diagrams. Differentiate between dependent and independent events. Calculate conditional probability.	Describe the results of two- and three-step chance experiments, both with and without replacements, assign probabilities to outcomes and determine probabilities of events. Investigate the concept of independence. (VCMSP347) Use the language of 'if ....then, 'given', 'of', 'knowing that' to investigate conditional statements and identify common mistakes in interpreting such language. (VCMSP348)
4-7	Indices and Algebra	Apply the first six index laws, reviewing and reinforcing previous learning. Apply the rules for negative and fractional indices. Be able to apply a combination of index laws. Expand and factorise one and two brackets. Apply the operations +, -, x, ÷ to algebraic fractions.	Simplify algebraic products and quotients using index laws. (VCMNA330) Factorise algebraic expressions by taking out a common algebraic factor. (VCMNA329) Expand binomial products and factorise monic quadratic expressions using a variety of strategies. (VCMNA332)
8 – 10	Geometric Reasoning	Identify when triangles are congruent. Using scale factor to find unknown side lengths. Understanding and using Mathematical proofs.	Formulate proofs involving congruent triangles and angle properties. (VCMMG344) Apply logical reasoning, including the use of congruence and similarity, to proofs and numerical exercises involving plane shapes. (VCMMG345)
Term 2 1 – 4	Linear and Non - Linear Equations	Solve single and multi-step equations, including algebraic fractions. Translate a worded question into an algebraic equation, defining variables. Solve quadratic equations by hand and by technology.	Substitute values into formulas to determine an unknown and re-arrange formulas to solve for a particular term. (VCMNA333) Solve problems involving linear equations, including those derived from formulas. (VCMNA335) Solve linear equations involving simple algebraic fractions. (VCMNA340) Solve simple quadratic equations using a range of strategies. (VCMNA341)

5 – 7	Pythagoras' Theorem	Define hypotenuse and recognise it on a right-angled triangle. Apply the Pythagoras' Theorem to calculate the side lengths of both 2-dimensional triangles and 3-dimensional shapes. Interpret a drawing and a worded question to be able to apply the theorem.	Solve right-angled triangle problems including those involving direction and angles of elevation and depression. (VCMMG346)
8 – 10	Graphing	Sketch linear graphs from a table of values. Calculate the gradient of a line. Sketch linear graphs using the gradient – intercept method. Sketch linear graphs using the x and y intercept method. Determine equations of lines. Define and use gradients to determine parallel and perpendicular lines.	Solve problems involving gradients of parallel and perpendicular lines. (VCMNA338) Explore the connection between algebraic and graphical representations of relations such as simple quadratic, reciprocal, circle and exponential, using digital technologies as appropriate. (VCMNA339)
Term 3 1 – 3	Financial Mathematics	Understand the difference between simple interest and compound interest. Calculate compound interest using simple interest formula. Use digital technology to calculate compound interest.	Connect the compound interest formula to repeated applications of simple interest using appropriate digital technologies. (VCMNA328)
4 – 7	Statistics: Univariate and Bivariate Data	Define and understand the difference between the 3 types of Measures of Centre – mean, median and mode. Be able to calculate the mean, median and mode from a set of data, including data in a frequency table, grouped data and a stem and leaf plot. Understand the measures of spread: range and Interquartile range (IQR). Be able to draw a box and whisker plots using 5-number summaries.	Determine quartiles and interquartile range and investigate the effect of individual data values, including outliers on the interquartile range. (VCMSP349) Construct and interpret box plots and use them to compare data sets. (VCMSP350) Compare shapes of box plots to corresponding histograms and dot plots and discuss the distribution of data. (VCMSP351) Use scatter plots to investigate and comment on relationships between two numerical variables. (VCMSP352)

		Be able to analyse a box and whisker plot and compare data sets in a parallel plot. Construct scatter plots from data and draw conclusions from comparisons	Investigate and describe bivariate numerical data, including where the independent variable is time. (VCMSP353) Evaluate statistical reports in the media and other places by linking claims to displays, statistics and representative data. (VCMSP354)
8 – 10	Trigonometry	Using Trigonometric ratios to find side lengths and angles in a triangle. Calculate angles of elevation and depression. Use and understand bearings. Worded application problems.	Solve right-angled triangle problems including those involving direction and angles of elevation and depression. (VCMMG346)
Term 4 1 – 2	Algebraic Fractions	Apply the operations +, - , x, ÷ to algebraic fractions.	Apply the four operations to simple algebraic fractions with numeral denominators. (VCMNA331)
3 – 4	Measurement	Apply the appropriate surface area formula for 3-dimensional objects. Apply Heron's Formula for the area of a triangle. Calculate the volume of 3-dimensional objects.	Solve problems involving surface area and volume for a range of prisms, cylinders and composite solids. (VCMMG343)
5 - 6	Simultaneous Equations	Graphical solutions of simultaneous equations. Solving simultaneous equations using both substitution and elimination methods. Define and solve linear inequalities.	Solve simultaneous linear equations, using algebraic and graphical techniques including using digital technology. (VCMNA337) Solve linear inequalities and graph their solutions on a number line. (VCMNA336)
7	Exam Revision		