Year Level: 8 **Subject: Mathematics**		
Unit	**Learning Focus**	**Victorian Curriculum**
TERM ONE		
Number	Adding, subtracting, multiplying and dividing positive and negative numbers. Understanding of movement up and down a number line. Discussion revolving around real situations. Learning the first, second, third and fourth Index Law including the zero index.	use the 4 operations with integers and with rational numbers, choosing and using efficient mental and written strategies, and digital tools where appropriate, and making estimates for these computations (VC2M8N04) establish and apply the exponent laws with positive integer exponents and the zero exponent, using exponent notation with numbers (VC2M8N02) recognise irrational numbers in applied contexts, including π and numbers that develop from the square root of positive real numbers that are not perfect squares, and recognise that irrational numbers cannot develop from the division of integer values by natural numbers (VC2M8N01) convert between fractions and terminating or recurring decimals, using digital tools as appropriate (VC2M8N03)
Algebra	Solving one and two step equations. Checking answers with substitution. Simplifying expressions. Expanding brackets. Factorising expressions.	create, expand, factorise, rearrange and simplify linear expressions, applying the associative, commutative, identity, distributive and inverse properties (VC2M8A01) use algorithms and related testing procedures to identify and correct errors (VC2M8A04)
TERM TWO		
Measurement	Converting units of measurement for area and volume. Finding perimeters and areas of parallelograms, trapeziums, rhombuses and kites. Investigating circles and finding circumference and area. Calculating volumes for rectangular and triangular prisms.	solve problems involving the area and perimeter of irregular and composite shapes using appropriate units (VC2M8M01) solve problems involving the volume and capacity of right prisms using appropriate units (VC2M8M02) solve problems involving the circumference and area of a circle using formulas and appropriate units (VC2M8M03) use Pythagoras' theorem to solve problems involving the side lengths of right-angled triangles (VC2M8M06)

Linear and Non-Linear Relationships	Plot coordinates to create linear graphs. Solve equations using a graph. Analyse the key components of linear verses non-linear relationships.	graph linear relations on the Cartesian plane using digital tools where appropriate; solve linear equations and one-variable inequalities using graphical and algebraic techniques; verify solutions by substitution (VC2M8A02) experiment with linear functions and relations using digital tools, making and testing conjectures and generalising emerging patterns (VC2M8A05)
TERM THREE		
Statistics	Methods of sampling data. Types of data. Presenting data Summary statistics. Analysing data. Outliers and their effects on summary statistics.	distinguish between a population and a sample, and investigate techniques for data collection including census, sampling, experiment and observation, and explain the practicalities and implications of obtaining data through these techniques (VC2M8ST01) analyse and report on the distribution of data from primary and secondary sources using random and non-random sampling techniques (VC2M8ST02) compare variations in distributions and proportions obtained from random samples of the same size drawn from a population and recognise the effect of sample size on this variation (VC2M8ST03) plan and conduct statistical investigations involving samples of a population; use ethical and fair methods to make inferences about the population and report findings, acknowledging uncertainty (VC2M8ST04)
Percentages, Profit and Loss	Investigate and calculate best buys and solve problems involving profit and loss.	use mathematical modelling to solve applied problems involving linear relations, including financial contexts involving profit and loss; formulate problems with linear functions, and choose a representation; interpret and communicate solutions in terms of the context, and review the appropriateness of the model (VC2M8A03) solve problems involving the use of percentages, including percentage increases and decreases and percentage error, with and without digital tools (VC2M8N05) use mathematical modelling to solve practical problems involving rational numbers and percentages, including financial contexts involving profit and loss; formulate problems, choosing efficient mental and written calculation strategies and using digital tools where appropriate; interpret and communicate solutions in terms of the context, reviewing the appropriateness of the model (VC2M8N06)

TERM FOUR		
Probability	Using numbers to represent the likelihood of certain events taking place. Learning the language of probability and using tree and Venn diagrams to show outcomes and relationships between different groups.	recognise that complementary events have a combined probability of one; use this relationship to calculate probabilities in applied contexts (VC2M8P01) determine all possible outcome combinations for 2 events, using two-way tables, tree diagrams and Venn diagrams, and use these to determine probabilities of specific events in practical situations (VC2M8P02) conduct repeated chance experiments and simulations, using digital tools to determine probabilities for compound events, and describe results (VC2M8P03)
Geometry	Develop an understanding of congruence of plane shapes and triangles. Understanding sum of angles in different shapes and finding unknown angles.	identify the conditions for congruence and similarity of triangles and explain the conditions for other sets of common shapes to be congruent or similar, including those formed by transformations (VC2M8SP01) establish properties of quadrilaterals using congruent triangles and angle properties, and solve related problems explaining reasoning (VC2M8SP02) describe in different ways the position and location of three-dimensional objects in 3 dimensions, including using a three-dimensional Cartesian coordinate system with the use of dynamic geometry software or other digital tools (VC2M8SP03) design and test algorithms involving a sequence of steps and decisions that identify congruency or similarity of shapes, and describe how the algorithm works (VC2M8SP04)
Rates and Ratios	Understanding and simplifying ratios. Distant and time problems at constant speed.	recognise and use rates to solve problems involving the comparison of 2 related quantities of different units of measure (VC2M8M05) use mathematical modelling to solve practical problems involving ratios and rates, including distance-time problems for travel at a constant speed and financial contexts; formulate problems; interpret and communicate solutions in terms of the situation, reviewing the appropriateness of the model (VC2M8M07)