

# Victorian Mathematics Content Map

This table aligns the lessons provided by Education Perfect to the Victorian Mathematics Curriculum.

Level 9 Victorian Curriculum	
<b>Number and Algebra</b>	
<b>Real numbers</b>	<b>Education Perfect Lessons</b>
Solve problems involving direct proportion. Explore the relationship between graphs and equations corresponding to simple rate problems (VCMNA301)	<a href="#">Introduction to Graphs</a> <a href="#">Direct Proportion</a> <a href="#">Applying Inverse Proportion</a> <a href="#">Introduction to Inverse Proportion</a> <a href="#">Analysing Graphs</a> <a href="#">Constant Rates</a> <a href="#">Variable Rates</a> <a href="#">Rates of Change</a> <a href="#">Analysing Rates of Change</a> <a href="#">Review: Rates</a>
Apply index laws to numerical expressions with integer indices (VCMNA302)	<a href="#">Integer Indices</a> <a href="#">Fractional Indices</a> <a href="#">Applying Index Laws</a> <a href="#">Review: First Index Law</a> <a href="#">Review: Second Index Law</a> <a href="#">Review: Third Index Law</a> <a href="#">Review: Fourth Index Law</a>
Express numbers in scientific notation (VCMNA303)	<a href="#">Scientific Notation</a> <a href="#">Using Scientific Notation</a>
<b>Money and financial mathematics</b>	
Solve problems involving simple interest (VCMNA304)	<a href="#">Income</a> <a href="#">Tax</a> <a href="#">Interest Theory</a> <a href="#">Calculating Simple Interest</a> <a href="#">Simple Interest: Real World Applications</a> <a href="#">Review: Profit and Loss</a> <a href="#">Review: Discounts and Supply Chains</a>
<b>Patterns and algebra</b>	
Extend and apply the index laws to variables, using positive integer indices and the zero index (VCMNA305)	<a href="#">Multiplying Powers</a> <a href="#">Dividing Powers</a> <a href="#">The Zero Index</a> <a href="#">Powers as the Base of Another Power</a> <a href="#">Multiplication as the Base of a Power</a> <a href="#">Division as the Base of a Power</a> <a href="#">Review: Simplifying Algebraic Expressions</a>

<p>Apply the distributive law to the expansion of algebraic expressions, including binomials, and collect like terms where appropriate (VCMNA306)</p>	<p><a href="#">Expanding and the Distributive Law</a>  <a href="#">Expanding Binomial Products</a>  <a href="#">Expanding Perfect Squares</a>  <a href="#">Expanding Differences of Two Squares</a>  <a href="#">Connecting Expanding and Factorising</a>  <a href="#">Identifying Algebraic Factors</a>  <a href="#">Identifying Complicated Algebraic Factors</a>  <a href="#">Factorising</a>  <a href="#">Factorisation Patterns</a>  <a href="#">Factorising Quadratic Expressions</a>  <a href="#">Review: Expanding Algebraic Expressions</a>  <a href="#">Review: Factorising Algebraic Expressions</a></p>
<p>Apply set structures to solve real-world problems (VCMNA307)</p>	
<p><b>Linear and non-linear relationships</b></p>	
<p>Find the distance between two points located on a Cartesian plane using a range of strategies, including graphing software (VCMNA308)</p>	<p><a href="#">Distance and Pythagoras' Theorem</a>  <a href="#">Applications of Coordinate Geometry: Distance</a>  <a href="#">Review: Cartesian Planes</a></p>
<p>Find the midpoint and gradient of a line segment (interval) on the Cartesian plane using a range of strategies, including graphing software (VCMNA309)</p>	<p><a href="#">Line Segments on Cartesian Planes</a>  <a href="#">Gradient of a Line Segment</a>  <a href="#">Midpoint of a Line Segment</a>  <a href="#">Applications of Coordinate Geometry: Gradient</a>  <a href="#">Applications of Coordinate Geometry: Midpoint</a></p>
<p>Sketch linear graphs using the coordinates of two points and solve linear equations (VCMNA310)</p>	<p><a href="#">Plotting Linear Graphs</a>  <a href="#">Drawing Linear Graphs Using the Gradient</a>  <a href="#">Graphing Using Technology - Casio Calculators</a>  <a href="#">Linear Patterns and Rules</a>  <a href="#">Determining Linear Rules</a>  <a href="#">Horizontal and Vertical Lines</a>  <a href="#">Review: Linear Graphs</a>  <a href="#">Review: Reading Graphs</a>  <a href="#">Review: Rearranging Linear Equations</a>  <a href="#">Review: Solving Simple Linear Equations</a></p>
<p>Graph simple non-linear relations with and without the use of digital technologies and solve simple related equations (VCMNA311)</p>	<p><a href="#">Parabolas</a>  <a href="#">Transforming Parabolas</a>  <a href="#">Circles</a>  <a href="#">Solving Non-Linear Equations</a></p>
<p><b>Measurement and Geometry</b></p>	
<p><b>Using units of measurement</b></p>	

Calculate the areas of composite shapes (VCMMG312)	<a href="#">Area of Composite Shapes</a> <a href="#">Review: Area</a>
Calculate the surface area and volume of cylinders and solve related problems (VCMMG313)	<a href="#">Surface Area of Cylinders</a> <a href="#">Review: Area of Circles</a>
Solve problems involving the surface area and volume of right prisms (VCMMG314)	<a href="#">Surface Area of Prisms</a> <a href="#">Converting between Capacity and Volume</a> <a href="#">Calculating Volume and Capacity</a> <a href="#">Review: Volume</a> <a href="#">Review: Converting Units of Capacity</a>
Investigate very small and very large time scales and intervals (VCMMG315)	<a href="#">Time Scales</a>
<b>Geometric reasoning</b>	
Use the enlargement transformation to explain similarity and develop the conditions for triangles to be similar (VCMMG316)	<a href="#">Angles and Triangles</a> <a href="#">Angles and Quadrilaterals</a> <a href="#">Angles and Congruence</a> <a href="#">Introduction to Similarity</a> <a href="#">Similarity Tests</a> <a href="#">Similarity and Angles</a> <a href="#">Similarity and Multiple Triangles</a> <a href="#">Review: Congruence of Triangles</a> <a href="#">Review: Congruence of Quadrilaterals</a>
Solve problems using ratio and scale factors in similar figures (VCMMG317)	<a href="#">Introduction to Scaling</a> <a href="#">Magnitude</a> <a href="#">Magnitude as a Ratio</a> <a href="#">Scaling on Cartesian Planes</a> <a href="#">Review: Transformations</a>
<b>Pythagoras and trigonometry</b>	
Investigate Pythagoras' Theorem and its application to solving simple problems involving right-angled triangles (VCMMG318)	<a href="#">Parts of a Triangle and the Hypotenuse</a> <a href="#">Pythagoras' Theorem</a> <a href="#">Calculating Unknown Lengths Using Pythagoras' Theorem</a> <a href="#">Calculating Unknown Lengths in Authentic Situations</a>
Use similarity to investigate the constancy of the sine, cosine and tangent ratios for a given angle in right-angled triangles (VCMMG319)	
Apply trigonometry to solve right-angled triangle problems (VCMMG320)	<a href="#">Introduction to Trigonometry</a> <a href="#">Calculating Unknown Sides Using Sine</a> <a href="#">Calculating Unknown Sides Using Cosine</a> <a href="#">Calculating Unknown Sides Using Tangent</a>



<b>Statistics and Probability</b>	
<b>Chance</b>	
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)	<a href="#">Introduction to Two-Step Experiments</a> <a href="#">Tree Diagrams</a> <a href="#">Using Tree Diagrams</a> <a href="#">Arrays</a> <a href="#">Using Arrays</a> <a href="#">Review: Introduction to Probability</a> <a href="#">Review: Complementary Events</a> <a href="#">Review: Describing Probabilities</a>
Calculate relative frequencies from given or collected data to estimate probabilities of events involving 'and' or 'or' (VCMSP322)	<a href="#">Relative Frequencies</a> <a href="#">Using Relative Frequencies</a> <a href="#">Venn Diagrams</a> <a href="#">Two-Way Tables</a> <a href="#">Advanced Venn Diagrams and Two-Way Tables</a> <a href="#">Review: Venn Diagrams</a> <a href="#">Review: Two-Way Tables</a> <a href="#">Review: Converting Between Venn Diagrams and Two-Way Tables</a>
Investigate reports of surveys in digital media and elsewhere for information on how data were obtained to estimate population means and medians (VCMSP323)	
<b>Data representation and interpretation</b>	
Identify everyday questions and issues involving at least one numerical and at least one categorical variable, and collect data directly from secondary sources (VCMSP324)	<a href="#">Primary and Secondary Data</a> <a href="#">Types of Data</a> <a href="#">Review: Sampling</a>
Construct back-to-back stem-and-leaf plots and histograms and describe data, using terms including 'skewed', 'symmetric' and 'bi modal' (VCMSP325)	<a href="#">Shape and Mode</a> <a href="#">Symmetry and Skew in Data</a> <a href="#">Frequency Polygons</a> <a href="#">Back-to-back Stem and Leaf Plots</a> <a href="#">Review: Frequency Tables</a>
Compare data displays using mean, median and range to describe and interpret numerical data sets in terms of location (centre) and spread (VCMSP326)	<a href="#">Effect of Shape on Mean and Median</a> <a href="#">Measures of Centre in Grouped Data</a> <a href="#">Quartiles</a> <a href="#">Box and Whisker Plots</a> <a href="#">Comparing Data Sets</a> <a href="#">Comparing Dot Plots</a> <a href="#">Comparing Histograms</a> <a href="#">Review: Measures of Centre and Spread</a>