

# NCEA Level 1 Mathematics

	2024 Standard				New lessons	Supplementary Resources
	1.1	1.2	1.3	1.4		
<b>Algebra   1. Expressions and Formulas</b>						
<i>1. Origins of Algebra</i>						
<a href="#">Early Algebra (NEW)</a>						
<a href="#">"Modern" Algebra (NEW)</a>						
<i>2. Simplifying Expressions</i>						
<a href="#">1. Adding and Subtracting Like Terms</a>						
<a href="#">2. Exponent Laws: Multiply and Divide</a>						
<a href="#">3. Exponent Laws: Brackets and Square Roots</a>						
<i>3. Algebraic Formulas</i>						
<a href="#">1. Substituting Into and Evaluating Algebraic Expressions</a>						
<a href="#">2. Rearranging Formulas</a>						
<a href="#">3. Manipulating Formulas</a>						
<i>4. Fractions</i>						
<a href="#">1. Adding and Subtracting Algebraic Fractions</a>						
<a href="#">2. Multiplying and Dividing Algebraic Fractions</a>						
<i>5. Expanding and Factorising</i>						
<a href="#">1. Expanding and Factorising</a>						
<a href="#">2. Expanding Single Brackets</a>						
<a href="#">3. Factorising Single Brackets</a>						
<a href="#">4. Expanding Double Brackets with Coefficients</a>						
<a href="#">5. Expanding Cubic Expressions</a>						
<a href="#">6. Factorising Quadratics</a>						
<a href="#">7. Factorising Quadratics with <math>a &gt; 1</math></a>						
<a href="#">8. Simplifying Rational Expressions</a>						
<b>Algebra   2. Linear Relationships</b>						
<i>1. Forming and Solving</i>						
<a href="#">1. Linear Equations</a>						
<a href="#">2. Solving Linear Equations</a>						
<a href="#">3. Solving Linear Equations with Fractions</a>						
<a href="#">4. Linear Word Problems</a>						
<a href="#">5. Applications of Linear Equations</a>						
<i>2. Simultaneous Equations</i>						
<a href="#">1. Simultaneous Equations</a>						
<a href="#">2. Solving Simultaneous Equations</a>						
<a href="#">3. Solving Simultaneous Equations Using Substitution</a>						
<a href="#">4. Solving Simultaneous Equations Using Elimination</a>						
<a href="#">5. Solving Simultaneous Equations Using Graphs</a>						
<a href="#">6. Applications of Simultaneous Equations</a>						
<a href="#">7. Applications of Solving Simultaneous Equations</a>						
<i>3. Graphing and Modeling</i>						
<a href="#">1. Linear Patterns and Rules</a>						
<a href="#">2. How to Model Situations</a>						
<a href="#">3. Drawing the Line from an Equation</a>						
<a href="#">4. Graphs From Equations</a>						
<a href="#">5. Plotting Linear Relationships</a>						
<a href="#">6. Graphing using the Gradient-Intercept Method</a>						
<a href="#">7. The Gradient of a Line</a>						
<a href="#">8. Slope and Intercept from a Graph</a>						
<a href="#">9. Equations From Graphs</a>						
<i>4. Applications (Supplementary Resources)</i>						
<a href="#">1. Linear Relationships</a>						
<a href="#">2. Applications of Linear Relationships</a>						
<a href="#">3. Applications of Solving Linear Equations</a>						
<a href="#">4. Global Warming</a>						
<a href="#">5. Gym Membership</a>						
<a href="#">6. Luke's Loan</a>						
<a href="#">7. The Leaky Bike Tyre</a>						
<a href="#">8. The Road Trip</a>						
<b>Algebra   3. Quadratic Relationships</b>						
<i>1. Forming and Solving</i>						
<a href="#">1. Quadratic Relationships</a>						
<a href="#">2. Quadratic Patterns</a>						
<a href="#">3. Rules for Quadratic Patterns</a>						
<a href="#">4. Quadratic Equations</a>						
<a href="#">5. Solving Quadratic Equations</a>						
<a href="#">6. Solving Quadratic Equations with <math>a &gt; 1</math></a>						
<i>2. Graphing</i>						

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	1.1	1.2	1.3	1.4		
<a href="#">1. Plotting Quadratic Relationships</a>						
<a href="#">2. Graphing Parabolas Using the Vertex Method</a>						
<a href="#">3. Graphing Parabolas Using the Intercept Method</a>						
<a href="#">4. Transformations of Parabolas</a>						
<b>3. Applications (Supplementary Resources)</b>						
<a href="#">1. Applications of Parabolas</a>						
<a href="#">2. Applications of Quadratic Equations (Factorising)</a>						
<a href="#">3. Pole Vault Training</a>						
<a href="#">4. Skateboard Park</a>						
<a href="#">5. Suspension Bridge</a>						
<a href="#">6. Trebuchet</a>						
<b>4. Inequations</b>						
<a href="#">1. Introduction to Inequalities</a>						
<a href="#">2. Solving Inequalities</a>						
<a href="#">3. Rearranging Inequalities</a>						
<a href="#">4. Solving Quadratic Inequalities</a>						
<a href="#">5. Inequations</a>						
<a href="#">6. Chained Inequalities</a>						
<a href="#">7. Review Lesson: Inequalities</a>						
<a href="#">8. Solving Linear Inequations</a>						
<a href="#">9. Applications of Inequations</a>						
<b>5. Exponential Relationships</b>						
<a href="#">1. Introduction to Exponential Functions</a>						
<a href="#">2. Exponential Equations</a>						
<a href="#">3. Exponential Equations: Practice</a>						
<a href="#">4. Equations and Graphs of Exponential Relationships</a>						
<a href="#">5. Initial Values of Exponential Graphs</a>						
<a href="#">6. Translations of Exponential Graphs</a>						
<a href="#">7. Applications of Exponential Relationships</a>						
<a href="#">8. Applications of Exponential Equations</a>						
<a href="#">9. Fruit Flies</a>						
<a href="#">10. Travelling Circus</a>						
<b>6. Other Relationships</b>						
<a href="#">1. Other Relationships</a>						
<a href="#">2. Step Functions</a>						
<a href="#">3. Piecewise Linear Graphs</a>						
<a href="#">4. Finding Piecewise Equations</a>						
<a href="#">5. Non-Linear Piecewise Functions</a>						
<a href="#">6. Internet Providers</a>						
<a href="#">7. Mere's Plants</a>						
<a href="#">8. NZ Tax Rates and Brackets</a>						
<a href="#">9. Saving Money</a>						
<b>7. Extension (Sequences and Curved Shapes)</b>						
<a href="#">1. Sums of Consecutive Numbers</a>						
<a href="#">2. Sums and Sequences</a>						
<a href="#">3. Averages of Sequences</a>						
<a href="#">4. Multiplying Consecutive Numbers</a>						
<a href="#">5. Circles and Spheres</a>						
<a href="#">6. Magic Squares</a>						
<a href="#">7. Rugby Balls</a>						
<b>Measurement   1. Properties of Shapes</b>						
<b>1. Units of Measurement</b>						
<a href="#">1. Metric Units and Reading Scales</a>						
<a href="#">2. Choosing Appropriate Units</a>						
<a href="#">3. Metric Unit Conversions</a>						
<a href="#">4. Historical Measurement Systems (NEW)</a>						
<a href="#">5. The Metric System (NEW)</a>						
<a href="#">6. Māori Measurement Systems (NEW)</a>						
<b>2. Perimeter and Area</b>						
<a href="#">1. Perimeter</a>						
<a href="#">2. Applications of Perimeter</a>						
<a href="#">3. Area</a>						
<a href="#">4. Estimating Area (NEW)</a>						
<a href="#">5. Area Scaling (NEW)</a>						
<a href="#">6. Surface Area of Prisms and Pyramids</a>						
<a href="#">5. Surface Area of Curved Solids</a>						
<b>3. Volume</b>						

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	1.1	1.2	1.3	1.4		
<a href="#">1. Volume of Prisms and Pyramids</a>						
<a href="#">2. Capacity</a>						
<a href="#">3. Volume of Curved Solids</a>						
<a href="#">4. Estimating Volume (NEW)</a>						
<a href="#">5. Volume Scaling (NEW)</a>						
<b>4. Application (Supplementary Resources)</b>						
<a href="#">Community Garden Project (no answer)</a>						
<a href="#">Filling the Pond (no answer)</a>						
<a href="#">Garden Sculpture (no answer)</a>						
<a href="#">Hair Today and Gone Tomorrow (no answer)</a>						
<a href="#">Small Bowls Badge Design (no answer)</a>						
<a href="#">Where Have All The Tanks Gone? (no answer)</a>						
<b>Measurement   2. Circles</b>						
<b>1. Circumference and Area</b>						
<a href="#">1. Circumference of Circles</a>						
<a href="#">2. Area of Circles</a>						
<b>Measurement   3. Pythagoras and Trigonometry</b>						
<b>1. Pythagoras's Theorem</b>						
<a href="#">1. Parts of a Triangle and the Hypotenuse</a>						
<a href="#">2. Pythagoras' Theorem</a>						
<a href="#">3. Pythagoras' Theorem in 3D</a>						
<a href="#">4. Building with Pythagoras</a>						
<b>2. Trigonometry</b>						
<a href="#">1. Introduction to Trigonometry</a>						
<a href="#">2. Trigonometric Ratios</a>						
<a href="#">3. Finding Side Lengths Using Trigonometry</a>						
<a href="#">4. Finding Angles Using Trigonometry</a>						
<a href="#">5. Trigonometry in 3D</a>						
<a href="#">6. Using Trigonometric Functions in Real World Applications</a>						
<a href="#">7. Using Inverse Trigonometric Functions in Real World Applications</a>						
<a href="#">8. Applications of Trigonometry in Coding</a>						
<a href="#">9. Review Lesson: Trigonometric Ratios</a>						
<b>3. Application</b>						
<a href="#">1. Pythagoras and Trigonometry</a>						
<a href="#">2. 3D Problems Using Right-Angled Triangles</a>						
<b>Space</b>						
<b>1. Angle Laws</b>						
<a href="#">1. Introduction to Angles</a>						
<a href="#">2. Angles on Parallel Lines</a>						
<a href="#">3. Angles on Parallel Lines: Practice</a>						
<a href="#">4. Interior and Exterior Angles of Polygons</a>						
<a href="#">5. Interior and Exterior Angles of Triangles: Practice</a>						
<a href="#">6. Regular Polygons and Quadrilaterals</a>						
<a href="#">7. Angles in Polygons</a>						
<a href="#">8. Similar Triangles</a>						
<a href="#">9. Similar Triangles and Angles</a>						
<a href="#">10. Similar Triangles and Ratios</a>						
<b>2. Angle Properties</b>						
<a href="#">1. Circle Geometry</a>						
<a href="#">2. Circle Geometry (Exam Questions)</a>						
<a href="#">3. Circular Angle Properties</a>						
<a href="#">4. Cyclic Quadrilaterals</a>						
<b>3. Relative Position</b>						
<a href="#">1. Angles of Elevation and Depression</a>						
<a href="#">2. Bearings</a>						
<a href="#">3. Bearings with Right-Angled Triangles</a>						
<a href="#">4. Bearings with Trigonometry and Pythagoras' Theorem</a>						
<a href="#">5. Bearings and 3D Trigonometry (Exam Questions)</a>						
<b>Number   1. Number Systems and Rounding</b>						
<b>1. Number Systems</b>						
<a href="#">Number Systems Around the World (NEW)</a>						
<a href="#">Maori Number Systems (NEW)</a>						
<a href="#">The Decimal System (NEW)</a>						
<a href="#">Introduction to Scientific Notation (Standard Form) - Large Numbers</a>						
<a href="#">Introduction to Scientific Notation (Standard Form) - Small Numbers</a>						
<b>2. Rounding</b>						
<a href="#">1. Rounding Sensibly</a>						

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	2024 Standard				New lessons	Supplementary Resources
	1.1	1.2	1.3	1.4		
<a href="#">2. Precision and Accuracy</a>						
<a href="#">3. Consequences of Rounding</a>						
<a href="#">4. Absolute vs. Relative Error</a>						
<a href="#">5. Limits of Accuracy</a>						
<a href="#">6. Precision in Context</a>						
<a href="#">7. Leading Digit Approximation</a>						
<a href="#">8. Propagation of Error</a>						
<a href="#">9. Rounding Based on Given Values</a>						
<a href="#">10. Rounding to Decimal Places</a>						
<a href="#">11. Rounding to Significant Figures</a>						
<a href="#">12. Rounding Negative Numbers</a>						
<b>Number   2. Decimals, Fractions and Percentages</b>						
<a href="#">1. Multiplying and Dividing Fractions</a>						
<a href="#">2. Adding and Subtracting Fractions</a>						
<a href="#">3. Mixed Applications of Fractions</a>						
<a href="#">4. Converting Between Fractions, Decimals and Percentages</a>						
<a href="#">5. Percentage of an Amount</a>						
<a href="#">6. Percentage Change</a>						
<a href="#">7. Increasing or Decreasing by a Percentage</a>						
<a href="#">8. Finding the Original Amount</a>						
<a href="#">9. Mixed Applications of Percentages</a>						
<a href="#">10. Goods and Services Tax</a>						
<a href="#">11. Income Tax</a>						
<b>Number   3. Ratios and Rates</b>						
<a href="#">1. Rates</a>						
<a href="#">2. Exchange Rates</a>						
<a href="#">3. Operations with Ratios</a>						
<a href="#">4. Applications of Ratios</a>						
<a href="#">5. Direct and Inverse Proportions</a>						
<b>Number   4. Interest</b>						
<a href="#">1. Introduction to Interest</a>						
<a href="#">2. Calculating Simple Interest</a>						
<a href="#">3. Simple and Compound Interest</a>						
<a href="#">4. Compound Interest Basic Formula</a>						
<a href="#">5. Compound Interest – Months and Weeks</a>						
<a href="#">6. Depreciation</a>						
<a href="#">7. Rearranging the Compound Interest Formula</a>						
<a href="#">8. Rearranging Compound Interest – Months and Weeks</a>						
<b>Number   5. Applications (Supplementary Resources)</b>						
<a href="#">Assignment 1: Fish and Chips</a>						
<a href="#">Assignment 2: European Holiday</a>						
<a href="#">Assignment 3: Gaming Company</a>						
<a href="#">Assignment 4: Theme Park</a>						
<a href="#">Assignment 5: Real Estate</a>						
<a href="#">Carbon Credits</a>						
<a href="#">Extended Task 1: Machine Replacement</a>						
<a href="#">Extended Task 2: Dino Day Out</a>						
<a href="#">Extended Task 3: Got Enough Milk?</a>						
<a href="#">Extended Task 4: Sold Out Arena</a>						
<a href="#">Extended Task 5: Journey to London</a>						
<a href="#">Extended Task 6: Theme Park</a>						
<a href="#">Extended Task 7: Wedding Planning</a>						
<a href="#">Extended Task 8: Summer Job</a>						
<a href="#">Extended Task 9: At the Zoo</a>						
<a href="#">Mike and Huia's Trip to England</a>						
<b>Statistics   1. General Statistics</b>						
<i>1. Key concepts</i>						
<a href="#">1. Statistical Investigations</a>						
<a href="#">2. PPDAC: The Statistical Enquiry Cycle</a>						
<a href="#">3. Data and Averages</a>						
<a href="#">4. Correlation vs. Causation</a>						
<a href="#">5. Measures of Centre and Spread: Finding and Calculating (NEW)</a>						
<a href="#">6. Bias in Data</a>						
<a href="#">7. Evaluating Claims (NEW)</a>						
<a href="#">8. History of Statistics (NEW)</a>						
<a href="#">9. Writing Statistical Reports (NEW)</a>						

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	2024 Standard				New lessons	Supplementary Resources
	1.1	1.2	1.3	1.4		
<b>2. Collecting Data</b>						
1. Types of Data (NEW)						
2. Why Sample?						
3. Sampling Methods						
4. Managing Sources of Variation (NEW)						
5. Introduction to Sample Variability						
6. Tikanga of Data Collection (NEW)						
7. Ethics of Data (NEW)						
<b>3. Managing data</b>						
1. Data: Data Cleaning						
2. Introduction to Spreadsheets						
3. Plotting Using a Calculator						
4. Plotting Using a Spreadsheet						
5. Using CensusAtSchool						
6. Using NZGrapher						
<b>Statistics   2. Bivariate Investigations</b>						
<b>1 Key Concepts</b>						
1. Introduction to Bivariate Data						
2. Bivariate Data (Exam Questions)						
3. Introduction to Bivariate Data						
4. Bivariate Variables						
5. Cleaning Bivariate Data						
<b>2. Analysing Bivariate Data</b>						
1. Features of Scatter Graphs (NEW)						
2. Analysing Trend by Eye						
3. Lines of Best Fit by Eye						
4. Conclusions about Relationships (NEW)						
5. Making Predictions (NEW)						
<b>3. Practice (Supplementary Resources)</b>						
1. Bivariate Assessment: Body Proportions						
2. Bivariate Assessment: Stopping Distance						
3. Bivariate Investigation: Body Proportions						
4. Bivariate Investigation: Stopping Distance						
<b>Statistics   3. Multivariate Investigations</b>						
<b>1. Key Concepts</b>						
1. Multivariate Data						
2. Multivariate Data (Exam Questions)						
3. Problem: Forming a Comparative Investigative Question						
4. Plan: Sample Size						
5. Plan And Data: Sampling						
<b>2. Analysing Multivariate Data</b>						
1. Analysis: Measures of Centre						
2. Analysis: Measures of Spread						
3. Analysis: Shape						
4. Analysis: Shift						
5. Informal Inferences using Shift (NEW)						
6. Informal Inferences using DBM/OVS (NEW)						
7. Analysis: Making an Inference Using Shift						
8. Conclusion: Writing the Conclusion						
<b>3. Practice (Supplementary Resources)</b>						
1. Multivariate Assessment - Olympic Results						
2. Practice Assessment - Olympic Results						
3. Multivariate Assessment - High School Test Results						
4. Practice Assessment - High School Test Results						
<b>4. Time Series Investigations</b>						
1. Introduction to Time Series						
2. Time Series Data						
3. Time Series Data (Exam Questions)						
4. PPDAC for Time Series (NEW)						
5. Gathering and Plotting Time Series Data						
6. Seasonal Trends and Cyclic Effects						
7. Long-term Trends						
8. Analysing Time Series Trend (NEW)						
9. Forecasting (NEW)						
<b>Probability</b>						
<b>1. Concepts</b>						
1. Probability Introduction						

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	2024 Standard				New lessons
	1.1	1.2	1.3	1.4	
<a href="#">2. Probability</a>					Supplementary Resources
<a href="#">3. Probability Concepts</a>					
<a href="#">4. Probability Trees</a>					
<a href="#">5. Two-Way Tables</a>					
<a href="#">6. History of Probability (NEW)</a>					
<b>2. Probability Experiments</b>					
<a href="#">1. Probability Experiment – Problem &amp; Plan</a>					
<a href="#">2. Probability Experiment – Recording &amp; Displaying Results</a>					
<a href="#">3. Probability Experiment – Long Run Probability</a>					
<a href="#">4. Change Investigation: Spin to Win</a>					
<a href="#">5. Chance Investigation: Rolling to Win</a>					
<a href="#">6. Chance Assessment: Spin to Win</a>					
<a href="#">7. Chance Assessment: Rolling to Win</a>					
<b>Assessment Practice</b>					
Assessment Template (1.1) (coming)					
Practice Assessment 1: The Average Student (coming)					
Practice Assessment 2: Priorities for your community (coming)					
Assessment Template (1.2) (coming)					
Practice Assessment 1: Community Garden (coming)					
Practice Assessment 2: The Hui (coming)					
Skills Checklist (1.3) (coming)					
Questions by Topic (folder) (coming)					
Mixed Questions (folder) (coming)					
Skills Checklist (1.4) (coming)					
Questions by Topic (folder) (coming)					
Mixed Questions (folder) (coming)					