



## Using Maths Aotearoa to support the implementation of the October 2025 New Zealand Maths Curriculum

While the curriculum statements are the knowledge students need to acquire, the mathematical processes are the ways in which the knowledge is taught. Activities within Maths Aotearoa provide the opportunities for: Investigating situations, representing situations, connecting situations, generalising findings, exploring and justifying findings.

### Year 7

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<p><b>Maths Aotearoa Book 4A</b>  <b>Unit 2 Working with fractional numbers</b>  <b>Chapter 7 The Base 10 Number System</b></p> <ul style="list-style-type: none"> <li>express large numbers using powers of 10</li> </ul> <p><b>Maths Aotearoa Book 4B</b>  <b>Unit 1 Working with whole numbers</b>  <b>Chapter 2 Primes Exponents &amp; Factorials</b></p> <ul style="list-style-type: none"> <li>recognise and explain a prime number and a composite number</li> </ul> <p><b>Chapter 3 Common Factors &amp; Common Multiples</b></p> <ul style="list-style-type: none"> <li>Find and use highest common factor and lowest common multiple</li> </ul>	<p style="text-align: center;"><b>Knowledge: The facts, concepts, principles and theories to teach</b></p> <p><b>Number structures &amp; Operations</b></p> <ul style="list-style-type: none"> <li>In our number system each place value is a power of 10, and this continues infinitely.</li> <li>Repeated multiplication can be expressed using exponent notation with positive exponents.</li> <li>An exponent means 'raising to the power of' (e.g. 52 is 5 raised to the power of 2 or 5 to the second power).</li> <li>Expanded form uses powers of 10 to indicate place value.</li> </ul> <ul style="list-style-type: none"> <li>Whole numbers greater than zero are either prime, composite, or the number 1. <ul style="list-style-type: none"> <li>- A prime number has exactly two distinct factors: 1 and the number itself.</li> <li>- A composite number has more than two distinct factors.</li> <li>- 1 is neither prime nor composite.</li> </ul> </li> <li>The highest common factor (HCF) of two numbers is the greatest number that is a factor of both the numbers.</li> <li>The least common multiple (LCM) of two numbers is the smallest number that they are both factors of.</li> </ul>
<p><b>Maths Aotearoa Book 4A</b>  <b>Unit 1 Working with whole numbers</b>  <b>Chapter 3 Positive &amp; Negative Integers</b></p> <ul style="list-style-type: none"> <li>locate and order integers on a number line</li> </ul> <p><b>Maths Aotearoa Book 4B</b>  <b>Unit 1 Working with whole numbers</b>  <b>Chapter 4 Positive &amp; Negative Integers</b></p> <ul style="list-style-type: none"> <li>Use negative integers in the context of finance</li> <li>Add and subtract integers</li> </ul>	<ul style="list-style-type: none"> <li>The number system extends infinitely, including into negative numbers, and can be represented with a number line.</li> <li>Integers are all the whole numbers, including positive whole numbers, negative whole numbers, and zero.</li> <li>Every number has an additive inverse, and their sum is zero (e.g. -5 and 5 are additive inverses; <math>-5 + 5 = 0</math> and <math>5 + -5 = 0</math>).</li> </ul> <p><b><i>This content is to be taught across Years 7 and 8.</i></b></p>
<p><b>Maths Aotearoa Book 4A</b>  <b>Unit 2 Working with fractional numbers</b>  <b>Chapter 6 Decimal Addition &amp; Subtraction</b></p> <ul style="list-style-type: none"> <li>Use rounding and estimation to check reasonableness of answers</li> </ul>	<ul style="list-style-type: none"> <li>Rounding, estimation, and using benchmarks support comparing numbers and checking whether findings are reasonable.</li> <li>Division can result in a remainder expressed as a whole number, fraction, or decimal.</li> </ul> <p><b><i>This content is to be taught across Years 7 and 8.</i></b></p>

<p><b>Maths Aotearoa Book 4A</b>  <b>Unit 3 Understand and Use Expressions &amp; Equations</b>  <b>Chapter 9 Order of Operations</b></p> <ul style="list-style-type: none"> <li>• understand the order of operations affect the value of an expression</li> <li>• determine the order of operations from the context of the problem</li> <li>• Use the mnemonic BEMA</li> </ul>	<ul style="list-style-type: none"> <li>• In expressions that have more than one operation, the order of operations is important; operations are done as follows: <ol style="list-style-type: none"> <li>1. operations grouped inside brackets</li> <li>2. exponents such as squaring and cubing</li> <li>3. multiplication and division, from left to right</li> <li>4. addition and subtraction, from left to right.</li> </ol> </li> <li>• A mnemonic, such as GEMA: grouped, exponents, multiplicative (<math>\times</math> and <math>\div</math>), and additive (<math>+</math> and <math>-</math>) can be used to remember the order of operations.</li> </ul> <p><b><i>This content is to be taught across Years 7 and 8.</i></b></p>
<p><b>Maths Aotearoa Book 4A</b>  <b>Unit 2 Working with fractional numbers</b>  <b>Chapter 5 Fractions Decimals &amp; Percentages</b></p> <ul style="list-style-type: none"> <li>• use multiplication &amp; division to find equivalent fractions</li> <li>• add and subtract fractions</li> <li>• multiply a whole number by a fraction</li> <li>• find percentage of a whole number</li> </ul> <p><b>Chapter 6 Decimal Addition &amp; Subtraction</b></p> <ul style="list-style-type: none"> <li>• use a standard algorithm for addition of decimals up to 3 decimal places</li> </ul> <p><b>Chapter 7 The Base 10 Number System</b></p> <ul style="list-style-type: none"> <li>• multiply and divide decimal numbers by powers of 10</li> </ul> <p><b>Chapter 8 Decimal Multiplication &amp; Division</b></p> <ul style="list-style-type: none"> <li>• multiply a whole number by a decimal</li> <li>• make connections to known facts</li> </ul> <p><b>Unit 7 Measurement</b>  <b>Chapter 18 Mass</b></p> <ul style="list-style-type: none"> <li>• Converting between units of mass by multiplying or dividing by powers</li> </ul> <p><b>Chapter 19 Length</b></p> <ul style="list-style-type: none"> <li>• Converting between units of length by multiplying or dividing by powers of 10</li> </ul> <p><b>Chapter 20 Capacity Area &amp; Volume</b></p> <ul style="list-style-type: none"> <li>• Converting between units of capacity by multiplying or dividing by powers of 10</li> </ul> <p><b>Maths Aotearoa Book 4B</b>  <b>Unit 2 Working with Fractional Numbers</b>  <b>Chapter 7 Proportions and Ratios</b></p> <ul style="list-style-type: none"> <li>• understand the difference between a proportion and a ratio</li> <li>• use proportional reasoning to explore relationships between quantities</li> <li>• using ratios to solve problems</li> </ul>	<ul style="list-style-type: none"> <li>• A fraction can describe a proportional relationship between two amounts.</li> <li>• Every fraction can be represented by an infinite set of equivalent fractions that occupy the same point on the number line.</li> <li>• Fractions can be converted to decimals using division, and the result can be: <ul style="list-style-type: none"> <li>- a terminating decimal (e.g. <math>516=0.3125</math>)</li> <li>- repeating and infinite decimal (e.g. <math>73=2.3</math>, <math>17=0.142857</math>)</li> </ul> </li> <li>• In the simplest form of a fraction, the numerator and denominator do not share a common factor.</li> <li>• Scaling by powers of 10 and using number facts supports multiplication with decimals.</li> <li>• Multiplying a whole number by a fraction and finding that fraction of that whole number have the same result.</li> <li>• Percentages are decimal fractions with denominators of 100; they are represented using the percent symbol %.</li> </ul>

<p><b>Maths Aotearoa Book 4A</b>  <b>Mini projects using money:</b>  <b>Unit 2 Chapter 8</b> Buying Pet Food  <b>Unit 3 Chapter 12</b> Supermarket Promotions  <b>Unit 4 Chapter 13</b> Paved Area for your garden</p>	<p><b>Financial Mathematics</b></p> <ul style="list-style-type: none"> <li>Solutions to problems involving New Zealand currency are rounded to two decimal places.</li> <li>Cash payments in New Zealand are rounded up or down to the nearest 10 cents.</li> </ul> <p><b><i>This content is to be taught across Years 7 and 8.</i></b></p>
<p><b>Maths Aotearoa Book 4A</b>  <b>Unit 3 Understand and Use Expressions &amp; Equations</b>  <b>Chapter 10 Finding the Rule</b></p> <ul style="list-style-type: none"> <li>use inverse relationships</li> <li>solve one step linear equations</li> <li>understand algebraic conventions</li> </ul> <p><b>Chapter 11 Using Spreadsheet</b></p> <ul style="list-style-type: none"> <li>understand the need for creating an expression in order to use the technology</li> <li>create linear equations to solve a problem</li> </ul>	<p><b>Equations and Relationships</b></p> <ul style="list-style-type: none"> <li>A variable can be used to represent: <ul style="list-style-type: none"> <li>an unknown number, often in formulae (e.g. <math>s</math> in <math>s^2</math>)</li> <li>a quantity that can vary or change (e.g. <math>y=3x+4</math>; <math>A=bh</math>)</li> <li>a specific unknown value to be solved (e.g. <math>3a=18</math>).</li> </ul> </li> <li>The solution to an equation satisfies that equation.</li> <li>Equations can be rearranged using inverse operations (e.g. addition and subtraction, multiplication and division).</li> <li>Solutions to equations can be checked using substitution.</li> <li>Equations can be solved through trial and error, but this can be an inefficient method.</li> </ul> <p><b><i>This content is to be taught across Years 7 and 8.</i></b></p> <ul style="list-style-type: none"> <li>Algebra has its own specialised notation to express relationships and operations concisely, including: <ul style="list-style-type: none"> <li><math>3b</math> in place of <math>b+b+b</math>, <math>3 \times b</math>, and <math>b \times 3</math></li> <li><math>b</math> in place of <math>1b</math></li> <li><math>ab</math> in place of <math>a \times b</math> or <math>b \times a</math> (in alphabetical order)</li> <li><math>a^2</math> in place of <math>a \times a</math>, <math>a^3</math> in place of <math>a \times a \times a</math></li> <li><math>a/b</math> in place of <math>a \div b</math> and <math>a \times 1/b</math></li> <li><math>a</math> in place of <math>a^1</math></li> <li><math>1</math> in place of <math>a/a</math> when <math>a \neq 0</math>.</li> </ul> </li> </ul>
<p><b>Maths Aotearoa Book 4B</b>  <b>Unit 3 Understand and Use Expressions &amp; Equations</b>  <b>Chapter 8 Creating Equations and Graphs</b></p> <ul style="list-style-type: none"> <li>explore &amp; describe patterns and relationships</li> <li>use tables to identify patterns and relationships develop rules for a pattern or relationship</li> <li>represent a linear equation using a graph</li> </ul> <p><b>Chapter 9 Using formulae</b></p> <ul style="list-style-type: none"> <li>Express a word rule using mathematical symbols</li> <li>use formulae in a spread sheet to solve problems</li> </ul>	<ul style="list-style-type: none"> <li>A coordinate plane extends to 4 quadrants that meet at the origin (0, 0).</li> <li>Linear patterns have a constant increase or decrease, can be described by the rule <math>t=a \times n+d</math>, and can be graphed as a straight line on a coordinate plane.</li> </ul> <p><b><i>This content is to be taught across Years 7 and 8.</i></b></p>

<p><b>Maths Aotearoa Book 4A</b>  <b>Unit 7 Measurement</b>  Chapter 20 Capacity, Area and Volume  identify attributes that can be measured with a ruler  use side measures to calculate area and volume</p> <p><b>Maths Aotearoa Book 4B</b>  <b>Unit 7 Measurement</b>  Chapter 17 Area and Perimeter</p> <ul style="list-style-type: none"> <li>calculate areas of complex shapes by creating rectangles</li> <li>calculate perimeters</li> <li>find the formula for calculating the area of a triangle.</li> </ul>	<p><b>Measuring</b></p> <ul style="list-style-type: none"> <li>Area is a two-dimensional measure, so its units are squared (e.g. cm<sup>2</sup>).</li> <li>Volume is a three-dimensional measure, so its units are cubed (e.g. cm<sup>3</sup>).</li> <li>Formulae represent the relationship between measurements and can be used to determine unknown measurements from known measurements.</li> <li>Shapes can be decomposed or recomposed to help find their measurements (e.g. their perimeters, areas, and volumes).</li> <li>Measurement formulae for perimeter are: <ul style="list-style-type: none"> <li>for a square: <math>P=4l</math></li> <li>for a rectangle: <math>P=2(l+w)</math>.</li> </ul> </li> <li>Measurement formulae for area are: <ul style="list-style-type: none"> <li>for a triangle: <math>A=\frac{1}{2}bh</math> or <math>A=bh/2</math></li> <li>for a square: <math>A=l^2</math></li> <li>for a rectangle: <math>A=lw</math> or <math>A=bh</math>.</li> </ul> </li> <li>Measurement formulae for volume are: <ul style="list-style-type: none"> <li>for a cube: <math>V=l^3</math></li> <li>for a rectangular prism: <math>V=lwh</math>.</li> </ul> </li> </ul>
<p><b>Maths Aotearoa Book 4B</b>  <b>Unit 7 Chapter 20 Working with Time</b></p> <ul style="list-style-type: none"> <li>Solve problems involving duration of time</li> <li>read timetables</li> <li>investigate time zones</li> <li>apply decimals to fractions of seconds (year 9)</li> </ul>	<p>Duration questions can involve fractions of time and converting between units of time.  <b><i>This content is to be taught across Years 7 and 8.</i></b></p>
<p><b>Maths Aotearoa Book 3B</b>  <b>Unit 6 Geometric Properties</b>  <b>Chapter 16 Triangles and Angles</b></p> <ul style="list-style-type: none"> <li>identify, describe and name different triangles</li> </ul> <p><b>Maths Aotearoa Book 4A</b>  <b>Unit 4 Geometric Properties</b>  <b>Chapter 13 Constructing Geometric Shapes</b></p> <ul style="list-style-type: none"> <li>construct different types of triangles based on side lengths and/or angle measures</li> </ul>	<p><b>Geometry</b>  <b>Shapes</b></p> <ul style="list-style-type: none"> <li>Triangles can be categorised by their angles. <ul style="list-style-type: none"> <li>An acute triangle has three acute angles.</li> <li>A right triangle has one right angle.</li> <li>An obtuse triangle has one obtuse angle.</li> </ul> </li> <li>Triangles can also be categorised by their sides. <ul style="list-style-type: none"> <li>An equilateral triangle has three equal-length sides.</li> <li>An isosceles triangle has at least two equal-length sides.</li> <li>A scalene triangle has different measures for each side length.</li> </ul> </li> <li>All angles in an equilateral triangle are 60°.</li> <li>The base angles (opposite the equal sides) of an isosceles triangle are equal</li> </ul>

<p><b>Maths Aotearoa Book 4A</b>  <b>Unit 4 Geometric Properties</b>  <b>Chapter 14 Lines and Angles</b></p> <ul style="list-style-type: none"> <li>• use precise geometric language when describing and explaining - intersecting, horizontal, vertical, perpendicular and parallel lines</li> <li>• draw conclusions about angles of intersections</li> </ul> <p><b>Unit 6 Transformations</b>  <b>Chapter 16 Rotational and Reflective Symmetry</b></p> <ul style="list-style-type: none"> <li>• investigate symmetrical and angle properties of parallelograms</li> </ul> <p><b>Maths Aotearoa Book 4B</b>  <b>Unit 5 Position and Orientation</b>  <b>Chapter 12 Investigating with Angles</b></p> <ul style="list-style-type: none"> <li>• use knowledge of rotation to calculate unknown angles along a straight line</li> <li>• use the angle properties of triangles to calculate unknown angles</li> </ul>	<p><b>Spatial Reasoning</b></p> <ul style="list-style-type: none"> <li>• The sum of the exterior angles of a polygon is <math>360^\circ</math>.</li> <li>• In a regular polygon, all exterior angles are the same; an exterior angle can be found by subtracting the interior angle from <math>180^\circ</math> or by dividing <math>360^\circ</math> by the number of sides.</li> <li>• The interior angle sum of a triangle is <math>180^\circ</math>; for a quadrilateral, it is <math>360^\circ</math>.</li> <li>• The interior angle sum of any polygon can be found using the formula <math>180(n-2)^\circ</math>, where n represents the total number of sides.</li> </ul> <p><b><i>This content is to be taught across Years 7 and 8.</i></b></p>
<p><b>Maths Aotearoa Book 4B</b>  <b>Unit 5 Position and Orientation</b>  <b>Chapter 13 Bearings and Locations</b></p> <ul style="list-style-type: none"> <li>• describe locations using compass directions and grid references</li> <li>• describe directions using bearings (angle measures)</li> </ul>	<p><b>Pathways (Practices - no knowledge)</b></p> <ul style="list-style-type: none"> <li>• Interpreting and communicating the location of positions and pathways using coordinates, angle measures, and the eight main and halfway compass points (e.g. NE, which is <math>45^\circ</math> E from N)</li> </ul>
<p><b>Maths Aotearoa Book 4B</b>  <b>Unit 8 Statistics and Probability</b>  <b>Chapter 22 Working with the Data</b></p> <ul style="list-style-type: none"> <li>• Calculate measures of centre and spread</li> <li>• Use the vocabulary mode, mean, median, range, cluster, outlier</li> </ul> <p><b>Chapter 23 Using the Statistical Enquiry Cycle</b></p> <ul style="list-style-type: none"> <li>• Draw conclusions and make statements based on multi variate data</li> </ul>	<p><b>Statistics</b>  <b>Developing Knowledge from Data</b></p> <ul style="list-style-type: none"> <li>• A variable is an attribute or measurement of the people or objects being studied. <ul style="list-style-type: none"> <li>- A categorical variable classifies objects or individuals into groups.</li> <li>- Discrete numerical variables are counted.</li> <li>- Continuous numerical variables are measured.</li> </ul> </li> <li>• The response to a statistical question can be summarised by a measure of central tendency. <ul style="list-style-type: none"> <li>- The mean is the average of numerical data.</li> <li>- The median is the middle value for sorted numerical data.</li> <li>- The mode is the data value with the highest frequency for categorical data or discrete numerical data.</li> </ul> </li> <li>• The response to a statistical question can be summarised by the range as a measure of spread. The range for numerical data is the highest value minus the lowest value.</li> </ul> <p><b><i>This content is to be taught across Years 7 and 8.</i></b></p>

<p><b>Maths Aotearoa Book 4B</b>  <b>Unit 8 Statistics and Probability</b>  <b>Chapter 22 Working with the Data</b></p> <ul style="list-style-type: none"> <li>• Construct data visualisations in order to show relationships between multivariate data</li> <li>• Interpret data displays to identify and explain outliers</li> </ul> <p><b>Chapter 23 Using the Statistical Enquiry Cycle</b></p> <ul style="list-style-type: none"> <li>• Organise and display multivariate data</li> </ul>	<p><b>Visualisation of Data</b></p> <ul style="list-style-type: none"> <li>• Categorical data can be visualised through dot plots and bar graphs.</li> <li>• Paired categorical variables can be visualised through a stacked bar graph or a clustered bar graph.</li> <li>• Bivariate time-series data can be visualised through a time-series graph.</li> <li>• A good data visualisation should allow viewers to discern the variable or variables and who the data was collected from, and then, depending on the type of visualisation, additional information such as units for numerical variables, frequency, proportions, patterns, and trends.</li> <li>• Outliers are individual data points that are very much bigger or smaller than most of the data points.</li> <li>• Outliers skew the mean value for a data set towards themselves, but not the median value.</li> <li>• Outliers are not necessarily an error, as there are some events that occur rarely in many situations.</li> </ul> <p><b><i>This content is to be taught across Years 7 and 8.</i></b></p>
<p><b>Maths Aotearoa Book 4B</b>  <b>Unit 8 Statistics and Probability</b>  <b>Chapter 22 Working with the Data</b></p> <ul style="list-style-type: none"> <li>• Create and interpret data visualisations</li> </ul> <p><b>Chapter 23 Using the Statistical Enquiry Cycle</b></p> <ul style="list-style-type: none"> <li>• Analyse multivariate data and draw conclusions</li> <li>• Interpret a time series graph and make assertions, identifying facts and trends</li> </ul>	<p><b>Interpretation of Data</b></p> <ul style="list-style-type: none"> <li>• The response to a statistical question includes findings that are summarised and interpreted in context and using evidence.</li> <li>• The tapering sides of a data visualisation are known as tails and may taper at the same rate, producing a symmetrical shape, or an uneven rate, producing a skewed shape. <ul style="list-style-type: none"> <li>- In positively skewed data, the right-tail tapers more slowly than the left tail.</li> <li>- In negatively skewed data, the left tail tapers more slowly than the right tail.</li> </ul> </li> <li>• Interpreting a data visualisation includes describing its variables and their units, the context for the data, and the visualisation's key features: <ul style="list-style-type: none"> <li>- its shape (e.g. the number of peaks, and whether the shape is symmetrical or skewed)</li> <li>- its central tendency (where the middle of the data lies, as indicated visually by the centre of the visualisation and numerically by the median)</li> <li>- its spread (how spread the data is from the minimum to the maximum value, and the numerical value of the range)</li> <li>- other features depending on the type of data and the data visualisation (e.g. the least and most frequent categories in categorical data, trends for time-series data).</li> </ul> </li> <li>• A graph that is missing parts (e.g. title, axis labels, axis scales) or has errors may have been made to be misleading or to hide information.</li> </ul> <p><b><i>This content is to be taught across Years 7 and 8.</i></b></p>

<p><b>Maths Aotearoa Book 4B</b>  <b>Unit 8 Statistics and Probability</b>  <b>Chapter 24 Probability Ideas</b></p> <ul style="list-style-type: none"> <li>recognise variance between experimental results and theoretical models of expected outcomes</li> </ul>	<p><b>Probability</b>  <b>Experimental Probability</b></p> <ul style="list-style-type: none"> <li>Some chance-based situations, such as rolling a weighted die, can only be explored through probability experiments.</li> <li>Results from sets of repeated trials for the same experiment may vary.</li> <li>The Law of Large Numbers states that as the number of trials in a chance experiment increases, the experimental probability will approach the experiment's theoretical probability.</li> <li>The estimated probability of an event from an experiment is the number of times the event happens divided by the total number of trials in the experiment (i.e. the relative frequency for that event).</li> </ul> <p><b><i>This content is to be taught across Years 7 and 8.</i></b></p>
<p><b>Maths Aotearoa Book 4A</b>  <b>Unit 8 Statistics and Probability</b>  <b>Chapter 24 Probability</b></p> <ul style="list-style-type: none"> <li>use tree diagrams to find all possible outcomes</li> <li>determine the frequency of an event</li> <li>express the probability as a fraction or a percentage</li> </ul> <p><b>Maths Aotearoa Book 4B</b>  <b>Unit 8 Statistics and Probability</b>  <b>Chapter 24 Probability Ideas</b></p> <ul style="list-style-type: none"> <li>use fractions and percentages to describe frequency</li> </ul>	<p><b>Theoretical Probability</b></p> <ul style="list-style-type: none"> <li>Lists, tables, and tree diagrams are useful systematic methods for generating all possible outcomes.</li> <li>If all possible outcomes are assumed to be equally likely, the probability of an event is number of ways the event can happen / total number of possible outcomes.</li> <li>Probabilities can be expressed as a fraction or decimal between 0 and 1, or as a percentage between 0% and 100%.</li> <li>An event is a subset of the sample space and thus can be a single outcome or a combination of outcomes.</li> <li>The probability of an event and its complement add to 1.</li> </ul> <p><b><i>This content is to be taught across Years 7 and 8.</i></b></p>

