



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 8

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<p>Maths Aotearoa Book 4B Unit 1 Working with whole numbers Chapter 2 Primes Exponents & Factorials</p> <ul style="list-style-type: none"> Use exponents to express composite numbers as their prime factors 	<p style="text-align: center;">Knowledge: The facts, concepts, principles and theories to teach</p> <p>Number structures & Operations</p> <ul style="list-style-type: none"> In our number system, each place value is a power of 10, and this continues infinitely to the left and right. Repeated division can be expressed using exponent notation with negative exponents. Decimals can be represented using negative exponents (i.e. negative powers of ten). Each composite number can be represented as a unique product of prime factors and summarised with exponent notation.
<p>Maths Aotearoa Book 4A Unit 1 Working with whole numbers Chapter 3 Positive & Negative Integers</p> <ul style="list-style-type: none"> locate and order integers on a number line <p>Maths Aotearoa Book 4B Unit 1 Working with whole numbers Chapter 4 Positive & Negative Integers</p> <ul style="list-style-type: none"> Use negative integers in the context of finance Add and subtract integers compare and order integers 	<ul style="list-style-type: none"> The number system extends infinitely, including into negative numbers, and can be represented with a number line. Integers are all the whole numbers, including positive whole numbers, negative whole numbers, and zero. Every number has an additive inverse, and their sum is zero (e.g. -5 and 5 are additive inverses; $-5 + 5 = 0$ and $5 + -5 = 0$). <p><i>This content is to be taught across Years 7 and 8.</i></p>
<p>Rounding and estimation is expected in all calculations throughout the Maths Aotearoa series Benchmarks are used specifically in work with fractions.</p>	<ul style="list-style-type: none"> Rounding, estimation, and using benchmarks support comparing numbers and checking whether findings are reasonable. Division can result in a remainder expressed as a whole number, fraction, or decimal. <p><i>This content is to be taught across Years 7 and 8.</i></p>
<p>Maths Aotearoa Book 4A Unit 3 Understand and Use Expressions & Equations Chapter 9 Order of Operations</p> <ul style="list-style-type: none"> understand the order of operations affect the value of an expression determine the order of operations from the context of the problem Use the mnemonic BEMA 	<ul style="list-style-type: none"> 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"> operations grouped inside brackets exponents such as squaring and cubing multiplication and division, from left to right addition and subtraction, from left to right. A mnemonic, such as GEMA: grouped, exponents, multiplicative (\times and \div), and additive ($+$ and $-$) can be used to remember the order of operations. <p><i>This content is to be taught across Years 7 and 8.</i></p>

<p>Maths Aotearoa Book 4A Unit 7 Measurement Chapter 18 Mass</p> <ul style="list-style-type: none"> • Converting between units of mass by multiplying or dividing by powers <p>Chapter 19 Length</p> <ul style="list-style-type: none"> • Converting between units of length by multiplying or dividing by powers of 10 <p>Chapter 20 Capacity Area & Volume</p> <ul style="list-style-type: none"> • Converting between units of capacity by multiplying or dividing by powers of 10 <p>Maths Aotearoa Book 4B Unit 2 Working with Fractional Numbers Chapter 5 Fractions Decimals and Percentages</p> <ul style="list-style-type: none"> • multiply fractions • Solve problems using percentages <p>Chapter 6 Multiplying and Dividing with Decimals</p> <ul style="list-style-type: none"> • apply the properties of multiplication to decimal numbers • use proportional adjustments • extend and use standard algorithms to decimal numbers <p>Chapter 7 Proportions and Ratios</p> <ul style="list-style-type: none"> • understand the different between a proportion and a ratio • use proportional reasoning to explore relationships between quantities 	<ul style="list-style-type: none"> • The product of two fractions can be found by multiplying the numerators and multiplying the denominators. • Percentages can be used to proportionally increase or decrease a quantity. • Ratios can be used to describe proportional relationships and unequal division of a whole. • Ratios, fractions, and percentages can all represent proportional relationships between two quantities.
<p>Creating and comparing weekly, monthly and yearly finance plans, buy now pay later schemes are not covered in Maths Aotearoa</p>	<p>Financial Mathematics</p> <ul style="list-style-type: none"> • Solutions to problems involving New Zealand currency are rounded to two decimal places. • Cash payments in New Zealand are rounded up or down to the nearest 10 cents. <p><i>This content is to be taught across Years 7 and 8.</i></p>
<p>Maths Aotearoa Book 4A Unit 3 Understand and Use Expressions & Equations Chapter 10 Finding the Rule</p> <ul style="list-style-type: none"> • use inverse relationships • solve one step linear equations • understand algebraic conventions <p>Chapter 11 Using Spreadsheet</p> <ul style="list-style-type: none"> • understand the need for creating an expression in order to use the technology • create linear equations to solve a problem 	<p>Equations and Relationships</p> <ul style="list-style-type: none"> • A variable can be used to represent: <ul style="list-style-type: none"> - an unknown number, often in formulae (e.g. s in s^2) - a quantity that can vary or change (e.g. $y=3x+4$; $A=bh$) - a specific unknown value to be solved (e.g. $3a=18$). • The solution to an equation satisfies that equation. • Equations can be rearranged using inverse operations (e.g. addition and subtraction, multiplication and division). • Solutions to equations can be checked using substitution. • Equations can be solved through trial and error, but this can be an inefficient method. <p><i>This content is to be taught across Years 7 and 8.</i></p>

<p>Maths Aotearoa Book 4A Unit 1 Understand and Use Expressions & Equations Chapter 4 Introducing exponents</p> <ul style="list-style-type: none"> explore the patterns in square and cubic numbers (triangular numbers not included) <p>Maths Aotearoa Book 4B Unit 3 Understand and Use Expressions & Equations Chapter 8 Creating Equations and Graphs</p> <ul style="list-style-type: none"> explore & describe patterns and relationships use tables to identify patterns and relationships develop rules for a pattern or relationship represent a linear equation using a graph <p>Chapter 9 Using formulae</p> <ul style="list-style-type: none"> Express a word rule using mathematical symbols use formulae in a spread sheet to solve problems 	<ul style="list-style-type: none"> The distributive, commutative, and associative laws are true for all real numbers. Algebraic expressions can be presented in many different ways including fully factorised, partially factorised, and fully expanded forms. <ul style="list-style-type: none"> A coordinate plane extends to 4 quadrants (1 quadrant only) that meet at the origin (0, 0). Linear patterns have a constant increase or decrease, can be described by the rule $t=a \times n+d$, and can be graphed as a straight line on a coordinate plane. <p><i>This content is to be taught across Years 7 and 8.</i></p>
<p>Maths Aotearoa Book 4B Unit 7 Measurement Chapter 19 Working with Volume and Capacity</p> <p>use a formula to calculate the volume of a cuboid calculate volumes of a triangular prism</p>	<p>Measuring</p> <ul style="list-style-type: none"> Liquids can be measured by capacity and by volume; there are standard conversions between measurements, in particular 1 mL = 1 cm³, 1L = 1000 cm³, and 1 m³ = 1000 L. The area of a parallelogram is given by $A=bh$. The area of a trapezium is given by $A=\frac{1}{2}(a+b)h$ or $A=(a+b)h/2$. The volume of a triangular prism is given by $V=\frac{1}{2}bhL$.
<p>Maths Aotearoa Book 4B Unit 7 Chapter 20 Working with Time</p> <ul style="list-style-type: none"> Solve problems involving duration of time read timetables investigate time zones 	<p>Duration questions can involve fractions of time and converting between units of time.</p> <p><i>This content is to be taught across Years 7 and 8.</i></p>
<p>Maths Aotearoa Book 3A Unit 6 Geometric Shapes Chapter 16 Exploring Circles</p> <ul style="list-style-type: none"> learn the vocabulary used when talking about the geometric properties of circles discover the relationship between diameter, radius and circumference of a circle <p>Maths Aotearoa Book 4A Unit 4 Geometric Properties Chapter 13 Constructing Geometric Shapes (P.106 - 107)</p> <ul style="list-style-type: none"> use the vocabulary of circles while drawing circles with a pair of compasses. 	<p>Geometry Shapes</p> <ul style="list-style-type: none"> The radius is the distance from the outside of a circle to the centre. The diameter is the length of a line through the centre of a circle that touches opposite points on the edge of the circle. The circumference is the distance around a circle.

<p>Maths Aotearoa Book 4A Unit 4 Geometric Properties Chapter 13 Constructing Geometric Shapes</p> <ul style="list-style-type: none"> investigate the relationship between the number of sides and the interior angles of polygons <p>Unit 6 Transformations Chapter 17 Enlargements</p> <ul style="list-style-type: none"> enlarge a shape by a scale factor identify invariant properties of a shape on enlargement understand the mathematical term “similar” <p>Maths Aotearoa Book 4B Unit 6 Transformations Chapter 14 Reflective Symmetry</p> <ul style="list-style-type: none"> identify the properties of reflections use the properties to measure distance and angles <p>Chapter 15 Rotations and Translations</p> <ul style="list-style-type: none"> rotate an object around a fixed point measure the angle of rotation translate an object through a fixed distance or a given direction <p>Chapter 16 Enlargements and Distortions</p> <ul style="list-style-type: none"> use a ratio to increase or decrease a linear measure recognise invariant properties of enlargements understand how a distortion occurs 	<p>Spatial Reasoning</p> <ul style="list-style-type: none"> The sum of the exterior angles of a polygon is 360°. In a regular polygon, all exterior angles are the same; an exterior angle can be found by subtracting the interior angle from 180° or by dividing 360° by the number of sides. The interior angle sum of a triangle is 180°; for a quadrilateral, it is 360°. The interior angle sum of any polygon can be found using the formula $180(n-2)^\circ$, where n represents the total number of sides. <p><i>This content is to be taught across Years 7 and 8.</i></p>
<p>Maths Aotearoa Book 4A Unit 5 Position and Orientation Chapter 15 Maps and Plans</p> <ul style="list-style-type: none"> select and interpret scales on maps and diagrams draw a plan to a self selected scale 	<p>Pathways</p> <ul style="list-style-type: none"> A map’s scale is the ratio between a distance on the map and the corresponding distance in the physical world.

<p>Maths Aotearoa Book 4B Unit 8 Statistics and Probability Chapter 22 Working with the Data</p> <ul style="list-style-type: none"> • Calculate measures of centre and spread • Use the vocabulary mode, mean, median, range, cluster, outlier <p>Chapter 23 Using the Statistical Enquiry Cycle</p> <ul style="list-style-type: none"> • Draw conclusions and make statements based on multi variate data 	<p>Statistics Developing Knowledge from Data</p> <ul style="list-style-type: none"> • A variable is an attribute or measurement of the people or objects being studied. <ul style="list-style-type: none"> - A categorical variable classifies objects or individuals into groups. - Discrete numerical variables are counted. - Continuous numerical variables are measured. • The response to a statistical question can be summarised by a measure of central tendency. <ul style="list-style-type: none"> - The mean is the average of numerical data. - The median is the middle value for sorted numerical data. - The mode is the data value with the highest frequency for categorical data or discrete numerical data. • 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. <p><i>This content is to be taught across Years 7 and 8.</i></p>
<p>Maths Aotearoa Book 4B Unit 8 Statistics and Probability Chapter 22 Working with the Data</p> <ul style="list-style-type: none"> • Construct data visualisations in order to show relationships between multipivariate data • Interpret data displays to identify and explain outliers <p>Chapter 23 Using the Statistical Enquiry Cycle</p> <ul style="list-style-type: none"> • Organise and display multivariate data 	<p>Visualisation of Data</p> <ul style="list-style-type: none"> • Categorical data can be visualised through dot plots and bar graphs. • Paired categorical variables can be visualised through a stacked bar graph or a clustered bar graph. • Bivariate time-series data can be visualised through a time-series graph. • 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. • Outliers are individual data points that are very much bigger or smaller than most of the data points. • Outliers skew the mean value for a data set towards themselves, but not the median value. • Outliers are not necessarily an error, as there are some events that occur rarely in many situations. <p><i>This content is to be taught across Years 7 and 8.</i></p>

<p>Maths Aotearoa Book 4B Unit 8 Statistics and Probability Chapter 22 Working with the Data</p> <ul style="list-style-type: none"> • Create and interpret data visualisations <p>Chapter 23 Using the Statistical Enquiry Cycle</p> <ul style="list-style-type: none"> • Analyse multivariate data and draw conclusions • Interpret a time series graph and make assertions, identifying facts and trends 	<p>Interpretation of Data</p> <ul style="list-style-type: none"> • The response to a statistical question includes findings that are summarised and interpreted in context and using evidence. • 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"> - In positively skewed data, the right-tail tapers more slowly than the left tail. - In negatively skewed data, the left tail tapers more slowly than the right tail. • 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"> - its shape (e.g. the number of peaks, and whether the shape is symmetrical or skewed) - its central tendency (where the middle of the data lies, as indicated visually by the centre of the visualisation and numerically by the median) - its spread (how spread the data is from the minimum to the maximum value, and the numerical value of the range) - 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). • 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. <p><i>This content is to be taught across Years 7 and 8.</i></p>
<p>Maths Aotearoa Book 4B Unit 8 Statistics and Probability Chapter 24 Probability Ideas</p> <ul style="list-style-type: none"> • recognise variance between experimental results and theoretical models of expected outcomes 	<p>Probability Experimental Probability</p> <ul style="list-style-type: none"> • Some chance-based situations, such as rolling a weighted die, can only be explored through probability experiments. • Results from sets of repeated trials for the same experiment may vary. • 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. • 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). <p><i>This content is to be taught across Years 7 and 8.</i></p>
<p>Maths Aotearoa Book 4A Unit 8 Statistics and Probability Chapter 24 Probability</p> <ul style="list-style-type: none"> • use tree diagrams to find all possible outcomes • determine the frequency of an event • express the probability as a fraction or a percentage <p>Maths Aotearoa Book 4B Unit 8 Statistics and Probability Chapter 24 Probability Ideas</p> <ul style="list-style-type: none"> • use fractions and percentages to describe frequency 	<p>Theoretical Probability</p> <ul style="list-style-type: none"> • Lists, tables, and tree diagrams are useful systematic methods for generating all possible outcomes. • 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. • Probabilities can be expressed as a fraction or decimal between 0 and 1, or as a percentage between 0% and 100%. • An event is a subset of the sample space and thus can be a single outcome or a combination of outcomes. • The probability of an event and its complement add to 1. <p><i>This content is to be taught across Years 7 and 8.</i></p>