



## 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 6

#### Maths Aotearoa Book 3B

##### Unit 2 Using the Number System for addition and Subtraction

##### Chapter 3 Larger Numbers

- Read, write, order and compare whole numbers into the millions
- Give the number 10, 100, 1000 10 000 before and after any given whole number.
- Give the number of tens or hundreds in a multi digit number
- Understand the role of zero in writing large numbers in numerals

##### Chapter 4 Using Place Value

- Understand and use the repeated grouping of 10 in the number system (nesting)
- Use zeros to represent repeated groupings in tens

#### Maths Aotearoa Book 4A

##### Unit 1 Working with whole numbers

##### Chapter 3 Positive & Negative Numbers (pages 21 - 24)

- Compare Integers
- Use + and - to mean a direction of movement
- Use and apply positive and negative integers

##### Chapter 4 Introducing Exponents (pages 32, 33, 35)

- Visualise square and cubic numbers

#### Knowledge: The facts, concepts, principles and theories to teach

##### Number Structures

- The base 10 number system extends infinitely in two directions
- Rounding can support predicting or estimating the result of a calculation.
- Rounding is based on identifying the nearest place value or unit (ten, hundred, thousand) for a given number; a number line supports this.

***This content is to be taught across Years 4 to 6.***

- Square numbers are produced by multiplying a number by itself.
- Cube numbers are produced by multiplying a number by itself and then by itself again (e.g.  $4 \times 4 \times 4$ ).
- Negative numbers are to the left of 0 on a horizontal number line and below 0 on a vertical number line.
- Negative numbers are represented symbolically with a negative sign (-) and named 'negative' along with the numeral (e.g. -4 is named negative four).
- Zero is neither positive nor negative.
- Negative numbers arise in a range of situations (e.g. debt, temperature).

***This content is to be taught across Years 5 and 6.***

<p><b>Maths Aotearoa Book 3B</b>  <b>Unit 2: Using the Number System for Addition and Subtraction</b>  <b>Chapter 5 Addition &amp; Subtraction Strategies</b></p> <ul style="list-style-type: none"> <li>Reliably and efficiently add and subtract multi-digit whole numbers</li> <li>Use a mental method when the numbers lend themselves to using a mental method (e.g <math>\pm 199</math>)</li> <li></li> </ul> <p><b>Maths Aotearoa Book 4A</b>  <b>Unit 1: Working With Whole Numbers</b>  <b>Chapter 1 Addition and Subtraction</b></p> <ul style="list-style-type: none"> <li>Select an efficient method for solving addition and subtraction calculations</li> <li>Make sensible estimates and use a calculator efficiently</li> <li>Use and explain a standard written algorithm for addition and subtraction.</li> </ul> <p><b>Chapter 2 Multiplication and Division</b></p> <ul style="list-style-type: none"> <li>Use and apply array thinking to multiplication and division problems</li> <li>Multiply multi digit numbers (using cross product thinking)</li> <li>Use and explain a standard algorithm for multiplication &amp; division</li> </ul>	<p><b>Operations</b></p> <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>operations grouped inside brackets</li> <li>exponents such as squaring</li> <li>multiplication and division, from left to right</li> <li>addition and subtraction, from left to right.</li> </ol> </li> <li>Addition and subtraction can be carried out mentally, using known facts, place value and partitioning, or column methods.</li> <li>Standard written algorithms (e.g. column addition, column subtraction) rely on place value, regrouping, and renaming.</li> </ul> <p><b><i>This content is to be taught across Years 4 to 6.</i></b></p> <ul style="list-style-type: none"> <li>Remainders from division can be represented as whole numbers, fractions, or decimals, depending on the context.</li> </ul>
<p><b>Maths Aotearoa Book 3B</b>  <b>Unit 4 Fractions and Decimals</b>  <b>Chapter 11 Into the Thousandths</b></p> <ul style="list-style-type: none"> <li>Read, write and represent a three place decimal number</li> <li>Round a three place decimal to the closest whole number, tenth or hundredth</li> </ul> <p><b>Chapter 12 Solving Problems with Decimals</b></p> <ul style="list-style-type: none"> <li>Use rounding to make an estimate</li> <li>Use mental methods, standard written methods or estimation and a calculator to solve problems involving decimals</li> <li></li> </ul> <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>Identify a rule for finding a non unit fraction of a quantity</li> <li>Use half as a bench mark to order and compare fractions</li> <li>Add and subtract fractions</li> <li>Convert between fractions, decimals and percentages</li> <li>Solve problems involving fractions and percentages.</li> </ul>	<p><b>Rational Numbers</b></p> <ul style="list-style-type: none"> <li>Thousandths can be created by dividing whole numbers by 1,000 and can be expressed as fractions or decimals.</li> <li>Equivalent fractions can be generated and simplified using common factors.</li> <li>Percentages can be used to compare quantities to a value or whole.</li> <li>Fractions should have the same denominator before using them in addition or subtraction.</li> </ul> <p><b><i>This content is to be taught across Years 5 and 6.</i></b></p> <ul style="list-style-type: none"> <li>Multiplication, division, fractions, decimals, and percentages can be used to solve problems involving relative quantities and measures.</li> </ul> <p><b><i>This content is to be taught across Years 5 and 6.</i></b></p>
<p><b>Maths Aotearoa Book 3B</b>  <b>Unit 4 Decimals and Percentages</b>  <b>Chapter 13 Introduction to percentages</b>  Mini project: The Super School Sale</p>	<p><b>Financial Mathematics</b></p> <ul style="list-style-type: none"> <li>Money uses our decimal place-value system to two decimal places.</li> </ul> <p><b><i>This content is to be taught across Years 5 and 6.</i></b></p>

**Maths Aotearoa Book 3B****Unit 5 Exploring Algebra****Chapter 14 Using a Calculator**

- Consolidate an understanding of equality (*introduce inequality symbols  $\leq \geq$* )
- Focus on relationships between components of an equation
- Use a letter for a missing part of an equation

**Chapter 15 Looking for Rules**

- Identify rules for sequential patterns
- Explain the rule for a specific pattern
- Use a letter to represent an unknown number in a rule

**Maths Aotearoa Book 4A****Unit 3: Algebra: Understanding and Using Expressions and Equations****Chapter 12 Graphing Rules and Patterns**

- Describe relationships between numbers using mapping diagrams and ordered pairs
- Plot ordered pairs as co-ordinates on a grid (graph)
- Use tables and graphs to display and describe a linear relationship

**Algebra**

- Inequalities can also include 'or equal to' ( $\leq, \geq$ ) to show a relationship that allows for the possibility of equality.
- Tables provide a way of organising the positions and elements of a pattern to reveal relationships or rules.
- A coordinate plane is formed when two perpendicular number lines intersect at (0, 0); usually the coordinate plane consists of a horizontal x-axis and a vertical y-axis.
- Coordinates are represented as (x,y), where the x-value represents horizontal movement and the y-value represents vertical movement. Plotting points on a coordinate plane can help to visualise numeric patterns.

## Maths Aotearoa Book 3B

### Unit 9 Measurement

#### Chapter 21 Attributes of Measure

- Identify attributes that can be measured and use correct vocabulary and units to describe the measurement  
(*Length, Mass, Angles, Capacity, Area, Volume, Temperature*)
- Estimate a measure using a benchmark
- Measure accurately to a smaller unit of measure
- Read measurement scales on a variety of measurement devices

#### Chapter 22 Standard Units for Length

- Measure accurately in fractions of a metre
- Use decimal fractions to communicate the relationship between metres and centimetres
- Understand the relationship between millimetres and metres

#### Chapter 23 Identifying Surface Area

- Use multiplication and side measures of a rectangle to calculate area

#### Chapter 24 Finding the Volume

- Devise the rule for calculating the volume of a cuboid using the side measures

### Unit 10: Temperature and Time

#### Chapter 25 Measuring Temperature

- Use a thermometer to measure temperature
- Add and subtract negative numbers in the context of temperature

#### Chapter 26 Measuring Time

- Tell the time from an analogue and digital clock
- Convert between analogue and digital
- Use a timing device to measure to the closest second

#### Chapter 27 Using Time

- Begin to think about time management and how they use their time
- Solve problems involving duration of time

## Maths Aotearoa Book 4A

### Unit 4 Geometric Properties

#### Chapter 14 Lines and Angles

- Measure and construct angles using a protractor
- Draw conclusions about angles of intersection

### Unit 7 Measurement

#### Chapter 21 Measuring Time

- Read 24 hour clock
- Calculate difference in times
- Solve problems involving time

## Measuring

- Measurements can be approximated by referencing previously measured benchmark lengths, volumes, or areas.
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- Prefixes are added to base metric units to signify larger or smaller quantities. The prefix:  
'milli-' (m) signifies a unit one thousand times smaller than the base unit  
'centi-' (c) signifies a unit one hundred times smaller than the base unit  
'kilo-' (k) signifies a unit one thousand times larger than the base unit.
- Converting between metric units can involve multiplying and dividing by 10, 100, or 1000.
- The area of a right-angled triangle is equal to half the area of a rectangle with the same base and height.
- The volumes of rectangular prisms can be calculated by multiplication of side lengths.
- Angles at a point sum to  $360^\circ$ .
- Angles on a straight line sum to  $180^\circ$ .
- Vertically opposite angles are equal.
- Time and duration arise in a range of situations including solar calendars (e.g. Roman, Gregorian) and lunar calendars (e.g. Māori, Chinese).
- Timetables can be used to record the time and duration of events.

## Maths Aotearoa Book 3B

### Unit 6 Geometric Properties

#### Chapter 16 Triangles and Angles

- Describe and name different sorts of triangles
- Discover angles in a triangle always add to  $180^\circ$
- Investigate side length relationships in right angle triangles
- Investigate angles within a square

#### Chapter 18 Prisms and Pyramids

- Describe the attributes of prisms and pyramids using correct geometric language
- Explore building pyramids and prisms (e.g. using polydron)
- Design nets for specific prisms

## Maths Aotearoa Book 3A

### Unit 7 Transformations

#### Chapter 19 Tessellations

- Visualise and create tessellations

## Maths Aotearoa Book 3B

### Unit 7 Transformations

#### Chapter 19 Rotations, Reflections and Translations

- Recognise reflective and rotational symmetry
- Understand the difference between reflective and rotational symmetry
- Describe translation on a grid
- Design patterns involving reflection, rotation and translation.
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#### Unit 8 Position and Orientation

#### Chapter 20 Maps and Pathways

- Interpret and use scales to give actual distances
- Use compass points to describe direction
- Use co-ordinates or grid references to describe position and pathways

## Geometry

### Shapes

- Quadrilaterals can be categorised into one or more of the following categories:
  - a trapezium, which has one pair of parallel sides
  - a parallelogram, which has two pairs of parallel sides
  - a kite, which has two pairs of equal-length adjacent sides
  - a rectangle, which has four right angles
  - a rhombus, which has four equal-length sides
  - a square, which has four right-angles and four equal-length sides.
- The order of rotational symmetry for a given shape is the number of times it appears in an identical orientation when completing a full turn ( $360^\circ$ ).
- The order of rotational symmetry for a circle is infinite.

### Spatial Reasoning

- A tessellation is a pattern made from a repeated shape or combination of shapes that can be rotated or reflected to fit together with no gaps or overlaps.
- A reflection is when a shape is flipped over a line, creating a mirror image.
- A translation is when a shape is slid from one place to another without being turned.
- A rotation is when a shape is turned around a fixed point.

***This content is to be taught across Years 4 to 6.***

### Pathways

- An alphanumeric grid reference is a system that divides a map into labelled rows (letters) and columns (numbers), so that each square can be identified by combining a letter and a number (e.g. A1, B2).

***This content is to be taught across Years 4 to 6.***

### **Maths Aotearoa Book 3A**

#### **Unit 8: Position & Orientation**

##### **Chapter 23 Co-ordinates and Graphs**

- Interpret time series graphs

### **Maths Aotearoa Book 3B**

#### **Unit 12: Statistical Investigations**

##### **Chapter 29 Collecting, Displaying and Interpreting Data**

- Interpret information from a range of data displays to answer investigative questions
- Explain and justify conclusions drawn from data displays through “interrogation” of the data

### **Maths Aotearoa Book 4A**

#### **Unit 12: Statistics and Probability**

##### **Chapter 22 Time Series Graphs**

- Answer questions from a time series graphs
- Make assertions based on the data given
- Creating a times series graph

##### **Chapter 23 Interpreting Data Displays**

- Identifying facts or trends
- Reading and interpreting data visualisations
- Comparing data

*(When using the dot plots adding calculating the average and the range)*

### **Statistics**

#### **Developing knowledge from data**

- Bivariate data includes time-series data with two numerical values, one time-based.
- The answers to a statistical investigative question will vary for different subjects.
- The mean (average) measures the centre of numerical data. The mean is the sum of all the values divided by the total number of values.
- The range measures the spread of numerical data. The range is the difference between the highest and lowest values.

#### **Visualisation of data**

- Time-series data can be visualised with a time-series or line graph formed on a coordinate plane, with the x-axis representing time and the y-axis the second variable.

#### **Interpretation of data**

- Interpreting a data visualisation includes describing its variables and their units, the context for the data, and the visualisation’s key features:
  - its shape (e.g. the number of peaks)
  - its middle group(s) (where the middle of the data lies)
  - its spread (how spread the data is from the minimum (lowest) value to the maximum (highest) value).

***This content is to be taught across Years 4 to 6.***

## Maths Aotearoa Book 3B

### Unit 11 Probability

#### Chapter 28 Probability

- From investigative activities/games identify the likelihood of the outcome
- Collect and record data to answer chance based investigative questions
- Express the likelihood of an outcome as a fraction and/or a percentage
- Compare findings with those of others
- Compare experimental results with expected outcomes
- Use tree diagrams as a tool to find all possible outcomes

## Probability

- Situations that involve chance, uncertainty, and randomness are called chance-based situations. Probability can be used to describe such situations.
- A trial is a single run of a chance-based situation that results in one of a set of possible outcomes.
- The possible outcomes for a chance-based situation can be arranged into events.
- The probability of an outcome is the chance of it occurring.
- Probabilities are associated with values between 0 and 1, where:
  - 0 is impossible
  - between 0 and 0.5 or 1/2 ranges from very unlikely to unlikely
  - 0.5 or 1/2 is equally likely
  - between 0.5 or 1/2 and 1 range from likely to very likely
  - 1 is certain.
- Likelihood can be visualised using a number line from 0 to 1.
- The sample space is the set of all possible outcomes of an experiment.
- The probability of an event, if events are believed to be equally likely, is the number of ways the event can happen divided by the total number of possible outcomes.
- The sum of the probabilities of all outcomes is equal to 1.

***This content is to be taught across Years 5 and 6.***