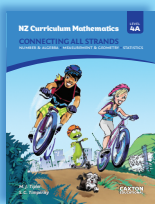


Mapping



NZ Curriculum Mathematics – Connecting all strands Level 4A

New Zealand Curriculum Level 4

In a range of meaningful contexts, students will be engaged in thinking mathematically and statistically. They will solve problems and model situations that require them to:

Note: These Achievement Objectives are covered fully by books 4A and 4B of our series.

Number and Algebra

1 Working with whole numbers

- Multiples and factors
- Multiplication strategies
- Division strategies
- Choosing a strategy for multiplication and division
- Using all four operations

Number strategies and knowledge

Use a range of multiplicative strategies when working on whole numbers.

Numeracy book references

Teaching Multiplication and Division – Book 6 (revised 2012)

- Cut and Paste
- Multiplication Smorgasbord
- The Royal Cooking Lessons

Teaching number sense and Algebraic Thinking – Book 8

- Doubling and Halving

2 Integers

- Using negative numbers
- Reading integers on scales
- Putting integers in order
- Adding and subtracting integers

Number strategies and knowledge

Understand addition and subtraction of fractions, decimals, and integers.

Numeracy book references

Teaching Addition, Subtraction and Place Value – Book 5 (revised 2012)

- Dollars and Bills
- Dropping and Rising Temperatures
- Bucket Balance

3 Fractions

- Fraction greater than 1
- Equivalent fractions
- Adding and subtracting fractions
- Comparing and ordering fractions using number lines and benchmarks
- Fraction of whole numbers

Number strategies and knowledge

- Understand addition and subtraction of fractions, decimals, and integers.
- Find fractions, decimals, and percentages of amounts expressed as whole numbers, simple fractions, and decimals.
- Apply simple linear proportions, including ordering fractions.

Numeracy book references

Teaching Number Sense and Algebraic Thinking – Book 8

- Estimating with Fractions
- Fractions
- Equivalent Fractions
- Fractions Greater than 1
- Fraction Number Lines
- Whole Numbers Times Fractions
- Fractions Times Whole Numbers

Mapping

NZ Curriculum Mathematics – Connecting all strands Level 4A	New Zealand Curriculum Level 4
<p>4 Decimals</p> <ul style="list-style-type: none"> • Decimal place value • Decimals on the number line • Ordering decimals using place value • Adding and subtracting decimals • Choosing a strategy to add and subtract decimals 	<p>Number strategies and knowledge</p> <ul style="list-style-type: none"> • Understand addition and subtraction of fractions, decimals, and integers. • Know the relative size and place value structure of positive and negative integers and decimals to three places. <p>Numeracy book references</p> <p><i>Teaching Addition, Subtraction and Place Value – Book 5 (Revised 2012)</i></p> <ul style="list-style-type: none"> • Introducing Decimal Fraction Place Value • Adding with Decimal Fractions • Subtraction with Tenths <p><i>Teaching Fractions, Decimals and Percentages – Book 7</i></p> <ul style="list-style-type: none"> • Pipe Music with Decimals • Deci-mats <p><i>Teaching Number Sense and Algebraic Thinking – Book 8</i></p> <ul style="list-style-type: none"> • Scales on Number Lines
<p>5 Percentages, fractions and decimals</p> <ul style="list-style-type: none"> • Understanding percentages as fractions • Percentages, fractions and decimals • Finding percentages of quantities 	<p>Number strategies and knowledge</p> <ul style="list-style-type: none"> • Know the equivalent decimal and percentage forms for everyday fractions. • Find fractions, decimals, and percentages of amounts expressed as whole numbers, simple fractions, and decimals. <p><i>Teaching Number Sense and Algebraic Thinking – Book 8</i></p> <ul style="list-style-type: none"> • Estimating Percentages
<p>6 Introducing ratios</p> <ul style="list-style-type: none"> • Understanding ratios • Equivalent ratios • Using ratios 	<p>Number strategies and knowledge</p> <ul style="list-style-type: none"> • Apply simple linear proportions, including ordering fractions.
<p>7 Expressions, formulae and equations</p> <ul style="list-style-type: none"> • Writing and understanding expressions • Modelling real-life situations with formulae • Equations 	<p>Equations and expressions</p> <ul style="list-style-type: none"> • Form and solve simple linear equations. <p>Numeracy book references</p> <p><i>Teaching Number Through Measurement, Geometry, Algebra and Statistics – Book 9</i></p> <ul style="list-style-type: none"> • Numbers at Work

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<p>8 Relationships and patterns</p> <ul style="list-style-type: none"> • Applying general rules to find unknown numbers • Using tables graphs and rules to describe linear relationships • Number patterns 	<p>Patterns and relationships</p> <ul style="list-style-type: none"> • Generalise properties of multiplication and division with whole numbers. • Use graphs, tables, and rules to describe linear relationships found in number and spatial patterns. <p>Numeracy book references <i>Teaching Number Through Measurement, Geometry, Algebra and Statistics – Book 9</i></p> <ul style="list-style-type: none"> • Sticky Moments • Thinking Ahead
<h2>Measurement and Geometry</h2>	
<p>9 Time, Timetables and charts</p> <ul style="list-style-type: none"> • am/pm time and 24-hour time • Time calculations • Timetables and charts 	<p>Measurement</p> <ul style="list-style-type: none"> • Interpret and use scales, timetables, and charts.
<p>10 Using measures</p> <ul style="list-style-type: none"> • Choosing units and devices • Estimating measurements • Reading scales • Estimating and measuring 	<p>Measurement</p> <ul style="list-style-type: none"> • Use appropriate scales, devices, and metric units for length, area, volume and capacity, weight (mass), temperature, angle, and time.
<p>11 Converting between units</p> <ul style="list-style-type: none"> • Metric conversions <ul style="list-style-type: none"> Converting larger to smaller units Converting smaller to larger units Mixed conversions 	<p>Measurement</p> <ul style="list-style-type: none"> • Convert between metric units, using whole numbers and commonly used decimals.
<p>12 Perimeter and area</p> <ul style="list-style-type: none"> • Perimeter • Area • Area by counting squares • Area of rectangles, squares and parallelograms • Areas of shapes made from rectangles and squares 	<p>Measurement</p> <ul style="list-style-type: none"> • Use side or edge lengths to find perimeters and areas of rectangles, parallelograms, and triangles and the volumes of cuboids.

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<p>13 Volume</p> <ul style="list-style-type: none"> • Volume, mass and capacity 	<p>Measurement</p> <ul style="list-style-type: none"> • Use side or edge lengths to find perimeters and areas of rectangles, parallelograms, and triangles and the volumes of cuboids.
<p>14 Angles</p> <ul style="list-style-type: none"> • Angles • What is the angle? • Measuring angles • Drawing angles • Naming angles • Angle problems 	<p>Measurement</p> <ul style="list-style-type: none"> • Use appropriate scales, devices, and metric units for length, area, volume and capacity, weight (mass), temperature, angle, and time.
<p>15 Symmetry and transformations</p> <ul style="list-style-type: none"> • Line symmetry • Rotational symmetry • Rotation, translation and reflection • Enlargement • Recognising transformations in patterns • Tessellations 	<p>Transformation</p> <ul style="list-style-type: none"> • Use the invariant properties of figures and objects under transformations (reflection, rotation, translation, or enlargement).
<p>16 Shape</p> <ul style="list-style-type: none"> • Properties of triangles • Properties of quadrilaterals and polygons • Sorting shapes • Cross-sections • 3-D shapes 	<p>Shape</p> <ul style="list-style-type: none"> • Identify classes of two- and three-dimensional shapes by their geometric properties.
<p>17 Nets and 3-D drawings</p> <ul style="list-style-type: none"> • Nets • Isometric drawing • Views 	<p>Shape</p> <ul style="list-style-type: none"> • Relate three-dimensional models to two-dimensional representations, and vice versa.
<p>18 Location</p> <ul style="list-style-type: none"> • Grid and coordinate references • Compass directions • Reading maps and plans using scales and compass directions 	<p>Position and orientation</p> <ul style="list-style-type: none"> • Communicate and interpret locations and directions, using compass directions, distances, and grid references.

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Statistics	
<p>19 Analysing data</p> <ul style="list-style-type: none"> • Mode and range • Mean and median • Using mean, median, mode and range • Analysing data displays 	<p>Statistical literacy</p> <ul style="list-style-type: none"> • Evaluate statements made by others about the findings of statistical investigations and probability activities. <p>Statistical investigation</p> <ul style="list-style-type: none"> • comparing distributions visually • communicating findings
<p>20 Displaying data</p> <ul style="list-style-type: none"> • Displaying data and analysing the displays • Time-series graphs 	<p>Statistical literacy</p> <ul style="list-style-type: none"> • Evaluate statements made by others about the findings of statistical investigations. <p>Statistical investigation</p> <ul style="list-style-type: none"> • Gathering, sorting, and displaying multivariate category, measurement, and time-series data to detect patterns, variations, relationships and trends • comparing distributions visually • communicating findings, using appropriate displays
<p>21 Statistical investigation</p> <ul style="list-style-type: none"> • Designing a data collection sheet • Grouped data • Designing scales for qualitative data • The Enquiry Cycle 	<p>Statistical literacy</p> <ul style="list-style-type: none"> • Evaluate statements made by others about the findings of statistical investigations and probability activities. <p>Statistical investigation</p> <ul style="list-style-type: none"> • Plan and conduct investigations using the statistical Enquiry Cycle • Determining appropriate variables and data collection methods • Gathering, sorting, and displaying multivariate category, measurement, and time-series data to detect patterns, variations, relationships and trends • comparing distributions visually • communicating findings, using appropriate displays
<p>22 Probability</p> <ul style="list-style-type: none"> • Understanding probability • The probability scale • Outcomes • Probability from experiments • Calculating theoretical probability 	<p>Probability</p> <ul style="list-style-type: none"> • Investigate situations that involve elements of chance by comparing experimental distributions with expectations from models of the possible outcomes, acknowledging variation and independence. • Use simple fractions and percentages to describe probabilities. <p>Statistical literacy</p> <ul style="list-style-type: none"> • Evaluate statements made by others about the findings of statistical investigations and probability activities.