



## Using Maths Aotearoa and Wilkie Way to deliver the refreshed New Zealand Curriculum

The Maths Aotearoa teacher book 3B continues the sequenced approach to developing key knowledge and concepts. It is organised into units of work each containing a number of chapters. Each chapter connects together appropriate learning statements from the curriculum. More practice material for each chapter is available through write on practice workbooks downloaded from the membership area of [wilkieway.co.nz](http://wilkieway.co.nz). All chapters are linked to Figure it Out activities.

*Maths Aotearoa teacher books and student books are available from [edify.co.nz](http://edify.co.nz)*

### Phase 2: Year 6

#### Understand: (big ideas)

As students build knowledge through their use of the mathematical and statistical processes, they begin to understand:

- Patterns and variation
- Logic and reasoning
- Visualisation and application

#### Do (practices)

Students will have learning opportunities to:

- Investigate situations:
- Represent situations:
- Connect situations:
- Generalise findings:
- Explain and justify findings.

### Know: Contexts Number & Algebra

| Number Structure  | Operations  | Rational Numbers  | Equations & relationships  |
|---|---|---|--|
| <p>Identify read, write, compare and order whole numbers up to 1 000 000 and represent them using base 10 structure</p> <p>Identify square numbers and factors of numbers up to 125</p> | <p>Use rounding, estimation, and inverse operations to predict results and to check the reasonableness of calculations.</p> <p>Round numbers to a specified power of 10, and round tenths and hundredths to the nearest whole number or 1 decimal place.</p> <p>Add and subtract any whole number</p> <p>Recall multiplication facts to at least 10 x 10 and corresponding division facts.</p> <p>Multiply multi-digit whole numbers</p> <p>Divide up to a 4 digit whole numbers by a one digit divisor with a remainder</p> <p>Use the order of operations rule with grouping (brackets), addition, subtraction, multiplication &amp; division</p> | <p>Identify, read, write and represent fractions, decimals (2 decimal places) and related percentages.</p> <p>Compare &amp; order fractions, decimals (to 2 places) &amp; percentages, and convert decimals &amp; percentages to fractions.</p> <p>Multiply &amp; divide numbers by 10 &amp; 100 to make decimals and whole numbers.</p> <p>For fractions with denominators or 2, 3, 4, 5, 6, 8, 10, 12 or 100</p> <ul style="list-style-type: none"> <li>• compare and order the fractions</li> <li>• identify when two fractions are equivalent</li> <li>• represent the fractions in their simplest form</li> </ul> <p>Convert between mixed numbers and improper fractions.</p> <p>Find a fraction or percentage of a whole number where the answer is a whole number.</p> <p>Identify from a fractional part of a set, the whole set.</p> <p>Add &amp; subtract fractions with the same or related denominators.</p> <p>Add &amp; subtract whole numbers &amp; decimals to 2 decimal places.</p> <p>Use known multiplication &amp; division facts to scale a quantity.</p> | <p>Form &amp; solve true and false number sentences and open number sentences involving all four operations using an understanding of equality or inequality.</p> <p>Use tables, XY graphs, and diagrams to recognise relationships in a linear pattern, develop a rule for the patterns in words and make conjectures about further elements in the patterns.</p> |
| <p><b>Financial Maths</b></p> <p>Solve problems involving purchases.</p> <p>Create simple financial plans</p> <p>Calculate 10%, 25% and 50% of whole dollar amounts.</p>                |   |   | <p><b>Algorithmic Thinking</b></p> <p>Create and use algorithms for making decisions that involve clear choices.</p>   |

## Maths Literacy Development

- Continued focus on learning specialist vocabulary. - see vocabulary list in curriculum document
- Continued focus with reading & understanding math texts.
- Communicate and explain their mathematics using manipulatives, words, numbers symbols, diagrams and equations
- Extend knowledge of equations to include brackets
- Know the meaning of prefixes used in measurement units

### Concepts being developed

- Addition and multiplication are commutative & associative
- Subtraction & division are not commutative
- Subtraction and addition are inverse relationships
- Multiplication as an array, as an allocation or rate, as a multiplicative comparison
- Division and multiplication are inverse relationships
- Fractions as numbers between whole numbers
- The importance of zero to the number system
- Decimals as explicit fractions based on powers of ten

### Key knowledge being developed

- Read, write and order numbers to 100 000
- Know the number of groups of thousands, hundreds, groups of ten and groups of one in any multi digit number
- Recall multiplication & division facts for up to 10 x 10
- Add and subtract multi digit numbers reliably and efficiently
- Convert between benchmark fractions, decimals & percentages (halves and quarters)
- Order of operations in solving equations

### Additional resources found in the members area of wilkie way.co.nz (subscription)

#### Numbers & The Number System - Phase Two

Word problems to contextualise the number system  
Material resources

#### Addition & Subtraction - Phase Two

Developing efficiency in calculating  
Games  
Word Problems

#### Multiply & Divide - Phase Two

Games  
Word Problems  
Extended task

#### Fractions, Decimals & Percentages - Phase Two

Decimals  
Equivalence & Comparison  
Mixed numbers & Improper fractions  
Fractions of a number  
Material resources  
Word problems

#### Financial Maths- Phase Two

Money Workbooks  
Word Problems  
Worksheets  
Games

### More learning experiences to add variety and challenge to your maths programme

- Graduated problems on a theme
- Maths Challenges
- Rich Learning Tasks
- Maths from stories

*By this level students should have a sound foundational knowledge of mathematics and need to be given plenty of opportunities to use their mathematics in unfamiliar problem solving situations. This will provide opportunities for students to challenge their own thinking about conceptual ideas and learn to explain and justify their thinking. Remember it is making mistakes that create the best learning. Each chapter is linked to Figure it Out activities. (Learning to read the texts is part of the mathematical literacy learning and students may need support.)*

## Maths Aotearoa Book 3B

| Unit 1: Using Properties of Multiplication  | Unit 2: Using the Number System for Addition and Subtraction  | Unit 3: Extending Multiplicative Thinking  |
|---|---|--|
| <p><b>Chapter 1 Multiplication Strategies</b></p> <ul style="list-style-type: none"> <li>Understand and use the properties of multiplication (<i>commutative, associative and distributive</i>)</li> <li>Recall multiplication &amp; division facts</li> <li>Multiply a double digit number by a single digit</li> </ul> <p><b>Chapter 2 Using Multiplication</b></p> <ul style="list-style-type: none"> <li>Understand and use the properties of multiplication (<i>commutative, associative and distributive</i>)</li> <li>Recognise and use square numbers</li> <li>Identify and record the appropriate equation for a word problem</li> <li>Solve word problems using multiplication</li> <li>Begin to solve more complex, multi step problems</li> </ul> | <p><b>Chapter 3 Larger Numbers</b></p> <ul style="list-style-type: none"> <li>Read, write, order and compare whole numbers into the millions</li> <li>Give the number 10, 100, 1000 10 000 before and after any given whole number.</li> <li>Give the number of tens or hundreds in a multi digit number</li> <li>Understand the role of zero in writing large numbers in numerals</li> </ul> <p><b>Chapter 4 Using Place Value</b></p> <ul style="list-style-type: none"> <li>Understand and use the repeated grouping of 10 in the number system (nesting)</li> <li>Use zeros to represent repeated groupings in tens</li> </ul> <p><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>\neq</math> 199)</li> </ul> | <p><b>Chapter 6 Extending Multiplication</b></p> <ul style="list-style-type: none"> <li>Use expanded numerals and the distributive property of multiplication to multiply a multi digit number by a single digit (<i>See 4A Chapter 2 Page 13 for how this extends to double digit by double digit</i>)</li> <li>Use a standard written recording for multi digit multiplication</li> </ul> <p><b>Chapter 7 Extending Division</b></p> <ul style="list-style-type: none"> <li>Read and interpret division questions in both recorded formats</li> <li>Recognise division as the inverse of multiplication</li> <li>Use the denominator of a fraction as a divisor</li> <li>Explore the division of larger numbers by a single digit</li> </ul> <p><b>Chapter 8 Using Multiples and Factors</b></p> <ul style="list-style-type: none"> <li>Use terminology multiples and factors</li> <li>Recognise multiples and the closest multiple</li> <li>Identify factors of a given number</li> <li>Use a standard written form for division of a multi digit number by a single digit number.</li> </ul> <p><b>Chapter 9 Fractions</b></p> <ul style="list-style-type: none"> <li>Use correct fraction terminology (<i>denominator, numerator</i>)</li> <li>Recognise patterns in fraction sequences</li> <li>Recognise equivalent fractions</li> <li>Understand ratio as comparing fraction parts of the whole</li> </ul> |
| <b>Support Material available from Wilkie Way website <a href="http://wilkieWAY.co.nz">wilkieWAY.co.nz</a>: membership area (subscription)</b>  |   |  |
| <p><b>Practice Workbooks</b></p> <p>9. (Chapters 1 &amp; 2) Practising Multiplication</p>   | <p><b>Practice Workbooks</b></p> <p>10. (Chapter 3 &amp; 4) Whole Number Place Value</p> <p>11. (Chapter 5) Addition and Subtraction</p>  | <p><b>Practice Workbooks</b></p> <p>12. (Chapter 6) Extending Multiplication</p> <p>13. (Chapters 7 &amp; 8) Extending Division, Multiples and Factors</p> <p>14. (Chapter 9) Fractions</p>  |

## Maths Aotearoa Book 3B

### Unit 4: Decimals and Percentages

#### Chapter 10 Into the Hundredths

- Read, write and represent a two place decimal number
- Give the number one tenth or one hundredth more or less than a given number
- Compare and order up to two place decimal number

#### Chapter 11 Into the Thousandths

- Read, write and represent a three place decimal number
- Round a three place decimal to the closest whole number, tenth or hundredth
- Use a standard written algorithm to add and subtract decimal numbers (aligning columns correctly)

#### Chapter 12 Solving Problems with Decimals

- Use rounding to make an estimate
- Use mental methods, standard written methods or estimation and a calculator to solve problems involving decimals

### Unit 5: Exploring Algebra

#### Chapter 14 Using a Calculator

- Consolidate an understanding of equality
- Focus on relationships between components of an equation
- Use a letter for a missing part of an equation
- Explore the effect of multiplying and dividing by a decimal number using a calculator

#### 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

**Support Material available from Wilkie Way website [wilkieway.co.nz](http://wilkieway.co.nz): membership area (subscription)**

#### Practice Workbooks

15. (Chapters 10 & 11) Decimal Fractions

#### Practice Workbooks

16. (Chapters 14 & 15) Exploring Algebra

**Maths Aotearoa teacher books provide the guidance on how to deliver the content found in the student textbooks.**

- **Information to develop and clarify your own conceptual understanding of the mathematics your students are learning.**
- **Making connections with previous work**
- **What manipulatives you could use**
- **Specific explanations required**

**The teacher book is deliberately NOT SCRIPTED as I firmly believe the questions you ask should be led by the responses your students give you. The questions you ask are dependent on your understanding of the mathematics. As you better understand then the better your questioning will become.**