



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

The Maths Aotearoa teacher book 2B 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. Book 3A has work on the standard written form for addition and subtraction which you may choose to use in year 4. More practice material for each chapter is available through write on practice workbooks downloaded from the membership area of wilkieway.co.nz

Maths Aotearoa teacher books and student books are available from edify.co.nz

Phase 2: Year 4

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 of Number & Algebra

Number Structure	Operations	Rational Numbers	Equations & relationships
<p>Skip count from any multiple of 100, forwards or backwards in 25s and 50s.</p> <p>Identify, read, write, compare and order whole numbers up to 10 000 and represent them using base 10 structure.</p>	<p>Use rounding, estimation, and inverse operations to predict results and to check the reasonableness of calculations.</p> <p>Round whole numbers to the nearest thousand, hundred or ten.</p> <p>Add and subtract 2 & 3 digit numbers.</p> <p>Recall multiplication and corresponding division facts for 4s and 6s</p> <p>Multiply a 2 digit number by a 1 digit number and two 1 digit numbers.</p> <p>Divide up to a three digit whole number by a one digit divisor, with no remainder.</p>	<p>Identify, read, write and represent tenths as fractions and decimals.</p> <p>Compare and order tenths as fractions and decimals, and convert decimal tenths to fractions.</p> <p>Divide whole numbers by 10 to make decimals.</p> <p>For fractions with related denominators of 2, 4, & 8, 3 & 6, or 5 & 10:</p> <ul style="list-style-type: none"> • compare and order fractions • identify when two fractions are equivalent by directly comparing them noticing the simplest form. <p>Convert (using number lines) between mixed numbers and improper fractions with denominators of 2, 3, 4, 5, 6, 8, & 10</p> <p>Find a unit fraction of a whole number, using multiplication & division facts and where the answer is a whole number.</p> <p>Identify from a unit fraction part of a set, the whole set.</p> <p>Add & subtract fractions with the same denominators to make up one whole.</p> <p>Add & subtract decimals to one decimal place.</p> <p>Use doubling and halving to scale a quantity.</p>	<p>Form & solve true or false number sentences and open number sentences involving multiplication and division, using an understanding of the equal sign.</p> <p>Recognise and describe the rule for a growing pattern using words, tables, and diagrams, and make conjectures about further elements in the pattern.</p>
<p>Financial Mathematics</p> <p>Make amounts of money using dollars and cents.</p> <p>Estimate and calculate the total cost and change for items costing whole dollar amounts.</p>			<p>Algorithmic Thinking</p> <p>Create and use an algorithm for generating a pattern or pathway.</p>

Maths Literacy Development

- Continued focus on learning specialist vocabulary.
- Continued focus with reading & understanding math texts.
- Communicate and explain their mathematics using manipulatives, words, numbers symbols and diagrams.
- See vocabulary lists in the curriculum document

Concepts being developed

- Addition and multiplication are commutative;
- Addition and multiplication are associative;
- Subtraction as takeaway and difference;
- Subtraction and addition are inverse relationships;
- Multiplication as an array, as an allocation or rate, as a multiplicative comparison
- Division as equal sharing and equal grouping;
- Fractions as equal sharing and equal partitioning;
- Decimals as a specific set of equivalent fractions with the denominator a power of 10
- Division and multiplication are inverse relationships;
- The importance of a group of ten to the number system.
- The importance of zero to the number system

Key knowledge being developed

- Read, write and order numbers to 10 000
- Recall family of facts for all numbers to 20
- Read, write, represent and order unit fractions
- Read, write, represent and order fractions with the same denominator
- Know the number of groups of hundreds, groups of ten and groups of one in any 4 digit number
- Recall multiplication & division facts for twos, fives ,tens, threes & fours

Additional resources found in the members area of wilkieway.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 - PhaseTwo

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

Maths Aotearoa Book 2B

Unit 1: Addition, Subtraction & Place Value	Unit 2: Multiplication & Division	Unit 3: Addition and Subtraction
<p>Chapter 1 Working with Numbers up to 20</p> <ul style="list-style-type: none"> Recognise the difference between relationship symbols (= < >) and operational symbols (+ - x ÷) Balance equations using the equals symbol Use relationship symbols < less than and > more than Represent a variety of types of story problems using addition and/or subtraction equations <p>Chapter 2 Addition with 2 Digits</p> <ul style="list-style-type: none"> Use standard partitioning to add two digit numbers Use the closest decade when adding two digit numbers Use compensation when adding two digit numbers <p>Chapter 3 Subtraction with 2 Digits</p> <ul style="list-style-type: none"> Use standard partitioning to subtract two digit numbers Use difference as a subtraction strategy <p>Chapter 4 Numbers to 999</p> <ul style="list-style-type: none"> Read write and order numbers to 1000 Expand numbers into hundreds, tens and ones Know one more/less and ten more/less than any 3 digit number Know the number of groups of ten in any 3 digit number <p>Chapter 5 Addition and Subtraction with Money</p> <ul style="list-style-type: none"> Know the conventions for writing money values in dollars and cents using a decimal point Use Addition & subtraction in the context of money 	<p>Chapter 6 Deriving Multiplication Facts</p> <ul style="list-style-type: none"> Uses an array and knowledge of the 2 x table to derive the 3x table Recall of 3 x table Use an array and knowledge of the 10 x table to derive the 9 times table Recall of 9 times table Explore patterns and relationships between x 3 and x 9 <p>Chapter 7 Doubling and Halving</p> <ul style="list-style-type: none"> Recognise and use the relationship between x 2 and x 4 Recall of 4 x table <p>Chapter 8 Sharing or Grouping</p> <ul style="list-style-type: none"> Use an array to find the equal share or equal group Understand division facts as the inverse of multiplication facts 	<p>Chapter 9 Rounding numbers</p> <ul style="list-style-type: none"> Round a three digit number to the closest hundred Round a three digit number to the closest ten Know the position of a number in the sequence of non consecutive numbers <p>Chapter 10 Addition with 3 Digits</p> <ul style="list-style-type: none"> Use standard partitioning for addition (demonstrate recording in a vertical format) Use the closest hundred and compensate for addition Make addends into easy to add numbers Estimate and use a calculator for addition <p>Chapter 11 Subtraction with 3 Digits</p> <ul style="list-style-type: none"> Use standard partitioning for subtraction (takeaway) Explore closest hundred and compensate to subtract (difference) Estimate and use a calculator for subtraction
Support Material available from Wilkie Way website wilkieWAY.co.nz: membership area (subscription)		
<p>Practice Workbooks</p> <p>14. (Chapter 2) Addition of 2 digit numbers 15. (Chapter 3) Subtraction of 2 digit numbers 16. (Chapter 4) Numbers to 999 17. (Chapter 5) Working with Money</p> <p>Financial Maths- Phase Two Money Workbooks Word Problems Worksheets</p>	<p>Practice Workbooks</p> <p>18. (Chapter 6) Working with the 3 & 9 times tables 19. (Chapter 7) Doubling, x 2, x 4, x 8 20. (Chapter 8) Equal Sharing and Equal Grouping</p> <p>Maths Gym - Learning Multiplication Tables</p> <p>5. Exploring Division 6. Doubling x 4 x 8 7. Three times table 8. Nine times table</p>	<p>Practice Workbooks</p> <p>21. (Chapter 9) Rounding and Estimating 22. (Chapter 10) Adding 3 digit numbers 23. (Chapter 11) Subtracting 3 digit numbers</p>
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Maths Aotearoa Book 2B

Unit 4: Understanding Fractions

Chapter 12 Fractions

- Recognise halves, quarters, thirds and fifths of a region
- Understand the word “whole” refers to one region
- Understand the size of the fractional part is dependent on the size of the whole
- Compare unit fractions (of the same size region)
- Recognise non unit fractions, including improper fractions (greater than 1) for halves and quarters
- Place halves and quarters on a number line (including greater than 1)
- Look for patterns and relationships between equivalent fractions

Chapter 13 Fractions of Numbers

- Understand the “whole” represents the total quantity in the group
- Beginning to see a connection between multiplication, equal sharing and fractions

Unit 5: Arithmetic Operations

Chapter 14 Focus on Division

- Use the division symbol \div for equal sharing and equal grouping situations
- Understand and uses divided between, divided into, and divided by
- See the connection between division and fractions

Chapter 15 Multiplication and Division

- Use known multiplication facts to recall division facts
- Solve multiplication & division problems
- Write an appropriate equation for a multiplication or division problem
- Create a word problem for a given multiplication or division equation
- Explore square numbers

Chapter 16 Using Calculators

- Use a calculator to explore relationships between numbers
- Use guess and check as a problem solving strategy
- Use a table to look for patterns and relationships

Chapter 17 The Four Operations

- Identify the appropriate operation to solve a word problem
- Use inverse operations
- Use an appropriate equation to communicate solution method
- Read and solve more complex problems.

Support Material available from Wilkie Way website wilkieway.co.nz: membership area (subscription)

Practice Workbooks

24. (Chapters 12 & 13) Understanding Fractions

Practice Workbooks

25. (Chapter 14 & 15) Understanding Division, Multiples and Factors
26. (Chapter 17) The Four Operations

Maths Aotearoa Book 3A

Unit 2: Using the Number System for Addition and Subtraction

Chapter 4 Addition

- Extend knowledge of addition strategies for 3 digit numbers
- Use a standard written (vertical) form for addition of 3 digit numbers
- Make estimates for addition

Chapter 5 Subtraction

- Extend known subtraction strategies in 3 digit numbers
- Expand a standard partition and convert from canonical to non-canonical form
- Use the non canonical form to understand the vertical algorithm for subtraction
- Use a standard written (vertical) form for subtraction of 3 digit numbers
- Make estimates for subtraction

Support Material available from Wilkie Way website wilkieWAY.co.nz: membership area (subscription)

Practice Workbooks

2. (Chapters 4 & 5) Addition & Subtraction

Note: Be careful not to spend too much time on addition and subtraction at the expense of foundational work for multiplicative thinking (including fractions). It will have a significant negative effect on student progress beyond year 4. Note the number of statements in the curriculum referring to rational numbers in comparison to addition & subtraction.

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 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.