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

The Maths Aotearoa teacher book 4B continues the sequenced approach to developing key knowledge and concepts. It is organised into units of work each containing a number of chapters. This plan also shows the building blocks from book 4A that students may have not completed in year 7. Book 4A and 4B provides the learning experiences required to meet the progress outcomes for end of year 8. (Phase 3) providing a solid foundation for students entering year 9 (Phase 4) More practice material for each chapter is available through write on practice workbooks downloaded from the membership area of wilkieway.co.nz
All chapters are linked to Figure it Out activities. *(Recall of multiplication & division facts are essential specific students may require a tables chart to enable them to access this level of mathematics)*

Maths Aotearoa available from edify.co.nz

Phase 3: Year 8

Understand: (big ideas)	Do (practices)
• Use maths to seek and understand patterns and relationships • Use maths to work with and make sense of change and variation • Use maths logic & reasoning to explain relationships and justify conclusions • Make use of different cultural views and ideas about mathematics • Embrace the history and evolution of mathematics	Students will have learning opportunities to: • Investigate situations: • Represent situations: • Connect situations: • Generalise findings: • Explain and justify findings.

Know: Contexts

Maths Literacy

- Confidently understand and use mathematical specialist vocabulary.
- Confidently read and understand math texts involving words, diagrams and symbols
- Communicate and explain their mathematics using words, diagrams (graphs & tables), equations and expressions
- Increase knowledge of mathematical symbols to include ratios, exponents, positive and negative integers, sigma, brackets, ordered pairs

Concepts being developed	Key knowledge being developed
• Addition and multiplication are commutative • Addition and multiplication are associative • Subtraction is not commutative • Subtraction and addition are inverse relationships • Multiplication as an array, as an allocation or rate, as a multiplicative comparison • Division is not commutative • 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	• Read and write whole numbers & decimals • Represent whole numbers and decimals using powers of 10 • Recall multiplication & division facts for up to 10 x 10 • Add and subtract decimal numbers reliably and efficiently • Multply fractions and decimals by whole numbers • Divide whole numbers reliably and efficently • Convert between fractions, decimals & percentages • Use order of operations in solving equations • Represent linear functions in tables, equations and graphs • Use step by step procedures (algorithms) to identify, interpret and explain patterns

Maths Aotearoa Book 4B	Maths Aotearoa Book 4A
Unit 1 Working with Whole Numbers	**Unit 1: Working With Whole Numbers**
Chapter 1 Divisibility Rules • Know divisibility rules for 2, 3,4,5,6,8,9 & 10 • Use divisibility rules to identify multiples of and factors • Recognise patterns and relationships between multiples **Chapter 2 Primes, Exponents and Factorials** • Know the definition of prime numbers, composite numbers, exponents • Recognise prime numbers • Use a factor tree to find the prime factors of a composite number • Use exponents to express composite numbers as their prime factors • Know where factorials can be used **Chapter 3 Common Factors and Common Multiples** • Find and use the highest common factor to solve problems • Find and use the lowest common multiple to solve problems **Chapter 4 Positive and Negative Integers** • Use negative integers in the context of debt • Use negative integers as a subtraction strategy • Add and subtract negative integers	**Chapter 4 Introducing Exponents** • Use the notation of powers to represent repeated multiplication • Visualise square and cubic numbers **Chapter 3 Positive and Negative Numbers** • Compare Integers • Use + and - to mean a direction of movement • Use and apply positive and negative integers
Support Material available from Wilkie Way website wilkieway.co.nz: membership area (subscription)	
4B Practice Workbooks 7. (Chapters 1 - 3) Multiples and Factors	
Unit 2 Working with Fractional Numbers	**Unit 2: Working with Fractional Numbers**
Chapter 5 Fractions, Decimals and Percentages • Understand "of " as multiply by • Use multiplication facts to find equivalent fractions • Compare fractions using equivalent fractions • Recognise decimals and percentages as special fractions • Convert between fractions, decimals and percentages as appropriate for the problem **Chapter 6 Multiplying and Dividing with Decimals** • Apply properties of multiplication to decimal numbers • Use proportional adjustments **Chapter 7 Proportions and Ratios** • Understand the difference between a proportion and a ratio • Understand how a proportion and a ratio are related	**Chapter 5 Fractions, Decimals & Percentages** • Identify a rule for finding a non unit fraction of a quantity • Use half as a bench mark to order and compare fractions • Add and subtract fractions • Convert between fractions, decimals and percentages • Solve problems involving fractions and percentages
Support Material available from Wilkie Way website wilkieway.co.nz: membership area (subscription)	
4B Practice Workbooks 8. (Chapter 5) Fractions Decimals and Percentages 9. (Chapter 6) Decimal Operations 10. (Chapter 7) Proportions and Ratios	**4A Practice Workbooks** 3. (Chapter 5) Fractions Decimals and Percentages

Maths Aotearoa Book 4B	**Maths Aotearoa Book 4A**
Unit 3 Algebra: Understanding and Using Expressions and Equations	**Unit 3: Algebra: Understanding and Using Expressions and Equations**
Chapter 8 Creating Equations and Graphs • Explore and describe patterns and relationships • Use tables to identify patterns and relationships • Represent patterns and relationships using equations • Represent a linear equation using a graph **Chapter 9 Using Formulae** • Express a word rule using mathematical symbols • Identify a rule and create a formula • Use a formula in a spreadsheet to solve problems	**Chapter 9 Order of Operations** • Understand how the order of operations affects the value of an expression • Solve calculations using the order of operations • Determine the order of operations from the context of a problem • Create an expression for a multi-step problem using brackets when necessary **Chapter 10 Finding the Rule** • Identify a rule and represent the rule using mathematical symbols • Understand and use relationship symbols • Solve a simple linear equation using inverse operations **Chapter 11 Using Spreadsheets** • Create simple formulae • Use a spreadsheet to perform simple calculations • Use a spreadsheet as a problem solving tool • Use symbol ∑ (sigma) from the tool bar to find the sum **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

Support Material available from Wilkie Way website wilkieway.co.nz: membership area (subscription)	
4B Practice Workbooks 11. (Chapters 8 & 9) Solving Linear Equations	**4A Practice Workbooks** 6. (Chapters 9 & 10) Equations & Expressions

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.

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 activites. (Learning to read the texts is part of the mathematical literacy learning and students may need support.)