



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

The Maths Aotearoa teacher book 3A 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. All chapters are linked to Figure it Out activities.

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

Phase 2: Year 5

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
Identify, read, write, compare and order whole numbers up to 100 000 and represent them using base 10 structure. Identify factors of numbers up to 100	Use rounding, estimation, and inverse operations to predict results and to check the reasonableness of calculations. Round whole numbers to the nearest 10 000, 1000, 100 or 10 and round tenths to the nearest whole number. Add & subtract whole numbers up to 10 000 Recall multiplication facts for 7s, 8s, & 9s and corresponding division facts Multiply a 3-digit by 1 and 2 digit whole numbers. Divide up to a 3 digit whole number by a one digit divisor, with a remainder.	Identify, read, write and represent tenths and hundredths as fractions and decimals. Compare and order tenths and hundredths as fractions and decimals, and convert decimal tenths and hundredths to fractions. Divide whole numbers by 10 and 100 to make decimals For fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12 or 100 <ul style="list-style-type: none"> • compare and order the fractions • identify when two fractions are equivalent Convert between mixed numbers and improper fractions with denominators of up to 10 Find a fraction of a whole number, using multiplication & division facts and where the answer is a whole number. Identify from a fractional part of a set, the whole set. Add & subtract fractions with the same denominators, including to make more than one whole. Add & subtract decimals to two place decimal places. Use known multiplication facts to scale a quantity.	Form & solve true and false number sentences and open number sentences involving all four operations. Use tables to recognise the relationship between the ordinal position and its corresponding element in a growing pattern, develop a rule for the pattern in words, and make conjectures about further elements or terms in the pattern.
Financial Maths Represent money values in multiples ways using notes and coins. Estimate to the nearest dollar and calculate the total cost of items costing dollars and cents, and the change from the nearest 10 dollars			Algorithmic Thinking Create and use an algorithm for generating a pattern, procedure or pathway.

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, diagrams and equations
- Extend knowledge of equations to include brackets
- Know the meaning of prefixes used in measurement units
- See vocabulary list in the curriculum document

Concepts being developed

- Addition and multiplication are commutative and 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
- Fractions as numbers between whole numbers;
- 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
- 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 or derive multiplication & division facts for up to 10×10
- 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 wilkieyay.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

Maths Aotearoa Book 3A

Unit 1: Properties of Multiplication	Unit 2: Using the Number System for Addition and Subtraction	Unit 3: Patterns & Relationships in Multiplication, Division & Fractions
<p>Chapter 1 Multiply and Divide by 6</p> <ul style="list-style-type: none"> Derive the multiplication facts (distributive property or doubling) Recall of six times table Recall of division facts Solve multiplication & division word problems <p>Chapter 2 Multiply and divide by 8</p> <ul style="list-style-type: none"> Derive the multiplication facts (distributive property or doubling) Recall of eight times table Recall of division facts Solve multiplication and division word problems <p>Chapter 3 Multiply and divide by 7</p> <ul style="list-style-type: none"> Derive the multiplication facts (distributive property) Recall of seven times table Recall of division facts Solve multiplication and division word problems 	<p>Chapter 4 Addition</p> <ul style="list-style-type: none"> 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 <p>Chapter 5 Subtraction</p> <ul style="list-style-type: none"> 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 <p>Chapter 6 Place value and larger numbers</p> <ul style="list-style-type: none"> Read, write numbers to 100 millions Round numbers Estimate with larger numbers Read and say larger numbers in te reo Maori 	<p>Chapter 7 Multiplication and Division</p> <ul style="list-style-type: none"> Recognise patterns within and between multiplication tables Graph multiplication tables and interpret the gradient Introduce a new method of recording division)[—] <p>Chapter 8 Fractions and Division</p> <ul style="list-style-type: none"> Represent a proportion using fractions Compare and order fractions on a number line Use the denominator of a fraction as a divisor Add and subtract fractions with the same denominator
Support Material available from Wilkie Way website wilkieWAY.co.nz: membership area (subscription)		
<p>Practice Workbooks</p> <p>1. (Chapters 1 - 3) Multiply by 6,7 & 8</p> <p>Maths Gym</p> <p>6. Doubling x 4 x 8 9. Doubling x 3 x 6 x 12 10, Seven times table Agility Course Two</p>	<p>Practice Workbooks</p> <p>2. (Chapters 4 & 5) Addition & Subtraction 3. (Chapter 6) Larger Numbers</p>	<p>Practice Workbooks</p> <p>4. (Chapter 7) Multiplication & Division 5. (Chapter 8) Fractions</p>
<p><i>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.)</i></p>		

Maths Aotearoa Book 3A

Unit 4: Beginning Decimals

Chapter 9 Measurement and the Decimal Point

- Know the relationship between metres and centimetre
- Know the relationship between litres and millilitres
- Know the relationship between grams and kilograms
- Represent tenths using decimal notation

Chapter 10 Building Decimals

- Read and write decimal fractions
- Represent tenths using manipulatives and make diagrammatic representations
- Give the number one tenth more or less than any number
- Sequence and order one place decimals
- Convert between fractional notation and decimal notation

Chapter 11 Adding and Subtracting with Tenths

- Round decimals to nearest whole number
- Extend additive strategies to one place decimals
- Understand and use basic facts repeated in each of the columns includes decimal columns

Unit 5: Beginning Algebra

Chapter 12 Using a Calculator

- Use of brackets in a mathematical equation
- Use a calculator efficiently including estimation and checking reasonableness of the answer
- Use the memory function

Chapter 13 Finding and Following Rules

- Use a table to collect information to identify a rule
- Create rules for simple word problems
- Follow the rules given in a table

Chapter 14 Number Patterns

- Introduce the idea of negative numbers
- Identify and follow the rule to continue a number sequence
- Create a sequence and write the rule

Chapter 15 The Four Operations

- Write an equation for a result unknown situation
- Write an equation for a specific additive comparison situation
- Understand why the subtraction function is used to calculate the unknown in an addition comparison situation.
- Use a letter instead of an empty box in an equation
- Generalise the properties of addition and subtraction
- Focus on relationships between the parts of an equation
- Understand and use equality

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

Practice Workbooks

6. (Chapters 9 - 11) Decimals - Tenths

Practice Workbooks

7. (Chapters 13 & 14) Finding and Following Rules
8. (Chapter 15) The Four Operations

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.