



**A guide to the teacher professional resources available in the members area of**

**wilkieway.co.nz**

**Individual subscription**

\$55 (Inc GST) per annum  
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**NZ School subscription**

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Overseas Schools - \$660 payable via Paypal

## Teacher Handbook Resources

Arithmetic Operations  
Fractions, Decimals, & Percentages  
Numbers & the Number System  
*(Handbooks available from online store)*

## Teacher Professional Resources

|                       |                       |
|-----------------------|-----------------------|
| Planning              | Assessment            |
| Moderation            | Curriculum Knowledge  |
| Learning Progressions | Professional Practice |
| Professional Readings |                       |
| Common Practice Model | Curriculum Refresh    |

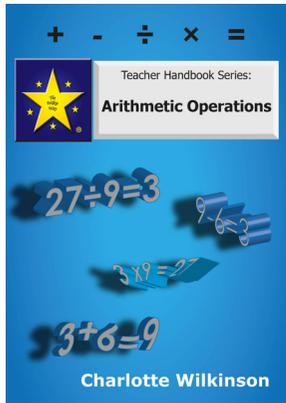
## Video Lessons

Geometric Thinking

## Equipment Resources

Equipment Resources

## Teacher Handbook Resources



### Arithmetic Operations

All resources referred to in the activities in the book.

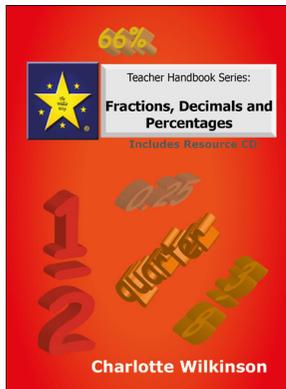
Commutative pair flashcards for all multiplication tables  
Alternative Hundreds boards - *creating patterns*  
Multiplication circles - *geometric patterns for multiplication tables*  
Number strips - *for arrays and using the distributive property*  
Twenties frames - *x 2 commutative property*

The handbooks are designed to build teacher knowledge in the context of teaching and learning.

Handbooks are available from the online store

\$45 each

Set of 3 for \$120

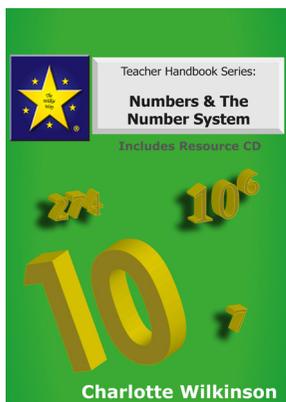


### Fractions Decimals & Percentages

All resource numbers are listed in the relevant chapter in the book

**81 Worksheets** Building fractional knowledge (includes answers)  
**60 Worksheets** Using fractions decimals & percentages in word problems (includes answers)

(These resources also come on a CD with the book)



### Numbers and The Number System

All resource numbers are listed in the relevant chapter in the book

**110 Worksheets** Building place value knowledge  
**20 Worksheets** Word problems using specific place value knowledge

(These resources also come on a CD with the book)

## Planning

**Folder Learning Outcomes:** Learning outcomes for Addition & Subtraction and Whole number place value listed by learning progression  
Learning outcomes for Multiplication, Division & Fractions listed by learning progression

These give you a learning sequence from which to plan your next learning steps for your students.  
They are also linked to Maths Aotearoa, Wilkie Way and Pearson Mathematics resources.

***All plans are in word files to be used and amended as required for the particular class you are working with.***

### Populated Plans Using NZ Maths, Pearson Mathematics, Maths Aotearoa and Wilkie Way

|                   |             |             |             |
|-------------------|-------------|-------------|-------------|
| Number & Geometry | Level 1 - 2 | Level 2 - 3 | Level 3 - 4 |
| Number & Measure  | Level 1 - 2 | Level 2 - 3 | Level 3 - 4 |

Planning templates will be updated to reflect the refreshed curriculum

|                |                       |                       |                       |                       |
|----------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <b>Folders</b> | <b>Year 1 &amp; 2</b> | <b>Year 3 &amp; 4</b> | <b>Year 5 &amp; 6</b> | <b>Year 7 &amp; 8</b> |
|----------------|-----------------------|-----------------------|-----------------------|-----------------------|

Each folder contains:

1. Overview Plan (Curriculum coverage plan - 2 year cycle)
2. Unit plans - one for each term over the two years (8 unit plans)
3. Curriculum support (resources collected from other areas of the website to support the building of teacher knowledge specific to the year groups)
4. Student tracking sheets

Planning to Cause Learning template

## Assessment

**Student tracking sheets** - in a hierarchical layout (most useful for teachers) and in a “brickwall” layout to represent interconnected content building up. (useful for student self directed learning) *Note: The brickwalls work from the bottom of the page upwards.*

Baseline Assessment - language & number knowledge version and just number knowledge version

Guide to using learning progressions for making a best fit assessment decision

Assessment Screen overview and teacher guides to assessment screens.

**Assessment screens are available from the online store and a discount price is available on pre orders in term 4)**

**Mathematical Knowledge & Skills Level 1, Level 2, Level 3, Level 4**

## Moderation

### The Learning progression framework for mathematics - linking the framework to the curriculum

**Teacher Guides:** Using the learning progression framework for moderation  
Using the learning progression framework for making assessment decisions

These resources have been designed to assist schools with understanding the learning progressions and using the exemplars to make assessment decisions

These booklets can be used in staff meetings or syndicate meeting. They can be led by the school (See facilitator guides) or the school can request an online workshop with myself. (There is a charge for the workshop)

|                             |                 |                 |  |
|-----------------------------|-----------------|-----------------|--|
| Additive progressions       | signposts 1 - 5 | signposts 4 - 7 |  |
| Algebraic progressions      | signpost 1 - 3  | signposts 3 - 6 | (Patterns & relationships, Using symbols & expressions)                      |
| Geometric progressions      | signposts 1 - 3 | signposts 3 - 5 |  |
| Measurement progressions    | signposts 1 - 3 | signposts 2 - 4 | signposts 4 - 7  |
| Multiplicative progressions | signposts 1 - 3 | signposts 2 - 5 | signposts 3 - 6  |
| Statistical progressions    | signposts 1 - 3 | signposts 3 - 5 | (Statistical investigations, Interpreting statistical and chance situations) |

## Learning Progressions

### Learning progressions overview chart

#### Wilkie Way progressions:

Addition & Subtraction

Multiplication & Division

Fractions

Place Value

Combined in Number Operations progressions and connections

Geometry

Measurement

## Curriculum Knowledge

### Measurement

Pocket Guides: *(Compiled from curriculum elaborations and units on NZMaths, Wilkie Way progressions and learning progressions framework)*

1. Beginning Measure
2. Learning to Measure
3. Using Standard Units of Measure (includes historical information on the metric system)

Measurement progressions

Developing linguistic and conceptual measurement

Powerpoint: Alignment of Measurement concepts with number concepts

### Geometry

Pocket Guides: *(Compiled from curriculum elaborations and units on NZMaths, Wilkie Way progressions and learning progressions framework)*

1. Beginning Geometric Thinking
2. Developing Geometric Thinking
3. Further Developing Geometric Thinking

Geometric Progressions

### Statistics

Pocket Guides: *(Compiled from curriculum elaborations and units on NZMaths, Wilkie Way progressions and learning progressions framework)*

1. Beginning Statistical Thinking
2. Developing Statistical Thinking
3. Further developing Statistical Thinking

Powerpoint: Getting Sorted, Statistical Investigations

### Powerpoints:

Building mathematical knowledge  
Fractions & the learning progressions  
Number and measurement connections  
Place value: The heart of the system  
Getting Sorted, Statistical Investigations  
Teaching & Learning Basic Facts

The image shows the cover of a 'Pocket Guide' titled 'A Wilkie Way Teaching and Learning Pocket Guide'. The main title is 'Learning to Measure'. Below the title, it says 'Developing the concept of measurement' and lists four bullet points: 'Counting units', 'Understanding units', 'Partitioning units', and 'Joining and separating units'. There is also a sub-bullet point: 'Learning about standard units of measure'. To the right of the text is a vertical thermometer. At the bottom, there are three illustrations: a measuring jug, a digital scale, and an analog clock. The bottom left corner has the copyright notice '© 2017 NCWilkinsons Ltd' and the bottom right corner has the website 'www.thewilkieway.co.nz'.

### Number & Algebra

Teaching number sense level 1  
Addition & subtraction essentials levels 2 - 4  
Addition subtraction progression  
Multiplication & division essentials levels 2 - 4  
Multiplication & division progression  
Multiplicative development  
Fraction progression  
Number operation progressions  
Place value matrix  
Place value progression

Powerpoints  
Place Value: The heart of the system  
Teaching and Learning Basic Facts

## Professional Practice

### Powerpoints

#### Curriculum Knowledge

Building mathematical knowledge  
Fractions & the learning progressions  
Number and Measurement connections  
Place value: the heart of the system  
Getting Sorted, Statistical Investigations  
Teaching & Learning Basic Facts

#### Maths Literacy

Reading in maths  
Speaking and listening in mathematics  
Writing in mathematics

#### Play-based Learning

Developing mathematical thinking through play  
Mathematics learning through play  
Planning for mathematics in a playbased environment

A maths diet for able mathematicians  
Arrangement for learning  
Common stumbling blocks  
Parent information - to be numerate  
Reviewing your numeracy curriculum  
Assisting the learning of numeracy (teacher aides)

#### Professional Readings

Arithmetic Properties  
Connecting the documents (powerpoint)  
Cycle of pedagogical practice  
Differentiated learning  
Effective teacher rubric  
Learning to read mathematical problems  
Learning to use symbols  
Learning progression framework for mathematics  
Managing maths lessons  
Solving proportional problems  
The mathematics teaching and learning cycle

#### Common Practice Model

Designed as teacher learning modules for individual or preferable syndicate or school discussion starters

##### Pedagogical Approaches

1. Communicating pedagogies
2. Supporting student relationships with maths

(Further modules in development)

## Curriculum Refresh

Collecting together anything to do with the refreshed curriculum. The new tracking sheets will also be filed under assessment. Progression pathways from the progress steps and progression outcomes for:

### Phases 1 - 4

- Addition & Subtraction
- Algebra
- Fractions
- Multiplication & Division
- Place Value

Other strands Phase 1  
Other strands Phase 2

More support will be added as we know more.

| Addition & Subtraction Refresh  |  |   |  |  |
|---|--|---|--|--|
| Phase 1: Addition & Subtraction with identified "worry point" if not achieved during the progress.  |  |   |  |  |
| Must achieve during first six months  | Must achieve during first year   | Must achieve during second year   | Progress outcomes by end of year 3<br>Number & Algebra   | Maths Aotearoa   |
| <ul style="list-style-type: none"> <li>• Join and separate groups of up to 10 objects and find the result by grouping and counting</li> </ul>   | <ul style="list-style-type: none"> <li>• Join and separate groups of up to 20 objects, and find the difference by grouping and counting</li> </ul> | <ul style="list-style-type: none"> <li>• Add and subtract numbers up to 100 by grouping and using number patterns</li> </ul>  | <p>I know that:</p> <ul style="list-style-type: none"> <li>• Numbers can be composed and decomposed in different ways using patterns</li> <li>• The commutative property applies to addition (e.g. <math>2 + 5 = 5 + 2</math>)</li> <li>• The additive identity is 0 (e.g. <math>4 + 0 = 4</math> and <math>5 - 0 = 5</math>)</li> </ul> <p>I know how to:</p> <ul style="list-style-type: none"> <li>• Add and subtract two and three digit numbers</li> <li>• Recall addition facts to 20 and their corresponding subtraction facts</li> <li>• Use the additive identity (0) and commutative property</li> </ul> | Book 1a: Unit 2<br>Unit 3<br>Unit 4<br>Book 1b: Unit 1<br>Unit 2<br>Unit 4<br>Book 2a: Unit 1<br>Unit 3<br>Unit 5<br>Book 2b: Unit 1<br>Unit 3<br>Unit 5 |
| Phase 2: Addition & Subtraction with identified "worry point" if not achieved during the progress   |  |   |  |  |
| Must achieve during year 4  | Must achieve during year 5   | Progress outcomes by end of year 6  |  |  |
| <ul style="list-style-type: none"> <li>• Use their recalled addition and subtraction basic facts to solve problems</li> <li>• Add and subtract two and three digit numbers reliably and efficiently</li> <li>• Add and subtract using the commutative property</li> </ul>   | <ul style="list-style-type: none"> <li>• Add and subtract whole numbers reliably and efficiently</li> </ul>  | <p>I know that:</p> <ul style="list-style-type: none"> <li>• The associative property applies to addition (e.g. <math>3 + 5 + 7 = 3 + 7 + 5</math>)</li> </ul> <p>I know how to:</p> <ul style="list-style-type: none"> <li>• Add and subtract whole numbers and decimal numbers to 2 decimal places</li> <li>• Use the associative and commutative properties</li> </ul> |  |  |
| Phase 3 Addition & Subtraction  |  |   |  |  |
| Progress Outcomes by end of year 8  |  |   |  |  |
| <p>I know that:</p> <ul style="list-style-type: none"> <li>• Positive and negative numbers can be added and subtracted</li> <li>• The inverse property applies to addition (<math>3 + -3 = 0</math>)</li> <li>• The commutative, associative and identity properties work the same for all numbers.</li> </ul> <p>I know how to:</p> <ul style="list-style-type: none"> <li>• Add and subtract decimals to three decimal places</li> <li>• Add and subtract fractions with the same denominator</li> <li>• Add and subtract integers</li> </ul> |  |   |  | Book 4a: Unit 1<br>Unit 2<br>Book 4b: Unit 1<br>Unit 2   |

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## Video Lessons

Geometric thinking - Each folder contains a video clip, teacher notes and follow up activities

Phase 1

Signpost 1 (level 1) : Ordering

Signpost 2 (level 1 - 2): Left & Right Turns

Phase 2

Signpost 3 (level 2): Using Grid References & Grid References and Compass Points

Signpost 4 (level 3): Lines, Angles & Triangles Drawing Plane Shapes

Phase 3

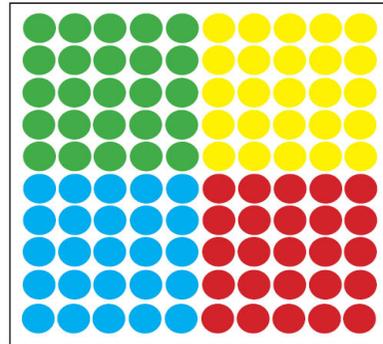
Signpost 5 (level 4): Bearings

## Equipment Resources

- Digit Cards (0 - 9)
- Numbers cards (to 100)
- Fraction Cards
- Function machines
- Place Value Houses
- Base 10 Money (\$1 - \$1000)
- Bead Frames
- Decimats
- Doubles Tens Frames
- Hundreds Array Board
- Number Strips
- Twenties Frames



Hundreds Array Board



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## Teacher Notes: Using Function Machines

Function machines are used to assist students to understand the actions of an operation on a number.

They assist students to understand the reverse operations of addition and subtraction and multiplication and division in a meaningful context.

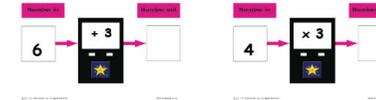
The machines can assist students to use the correct operation symbol in an equation. It is important to stress to students that the = symbol does not mean what comes out of the machine, as in the recorded equation this is what is implied.

Use the number cards in the Equipment resources folder for the number in an the number out.

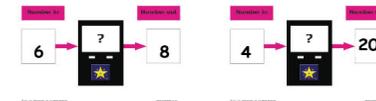
Use the operation cards in the Equipment resources folder for the function the machine performs.

Initially use Function Machine 1

Question Type 1: What number will come out of the machine?



Question Type 2: What has the machine done to the number?



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