The Wilkie Way
Newsletter February 2021
www.wilkieway.co.nz

NCEA Literacy and Numeracy changes: Implications for Primary and Intermediate Schools

As part of the NCEA Change Package, new Unit Standards are being developed to assess foundational literacy and numeracy. Draft standards have been released for public feedback. This is to ensure that young people have the foundational skills they need to engage across the curriculum, in work, and in life.

The package of Literacy & Numeracy standards will be worth 20 credits in total and be **externally assessed**. Learners will be required to meet the standards to attain NCEA at any level from 2023. They will assess foundational literacy and numeracy. This is at approximately Level 4/5 of the Curriculum where students have control over Level 4 and are ready to work at Level 5.

This has come about because a significant proportion of students who had achieved NCEA level 2 were still innumerate.
Being numerate in Aotearoa New Zealand today means recognition of tino rangatiratanga, where our cultural worldviews influence how we weave together the many threads. This demonstrates that **mathematics and statistics are bodies of knowledge** created and used by people, for people, and for their commmunities.

The recent TIMMS report on the declining level of mathematics in New Zealand made a very valid point. While it recognised our students are pretty good at reasoning they were deficient in the amount of mathematical knowledge they had.

In the modern world we often hear “we don’t need the knowledge because we can google it”. This is not the case for mathematical knowledge.
We need to be building mathematical knowledge and skills - without the knowledge and skills we are limited in the mathematics we can readily apply to situations.
Knowledge goes beyond recalling basic facts. The knowledge is the mathematical content students need to know inorder to process ideas.

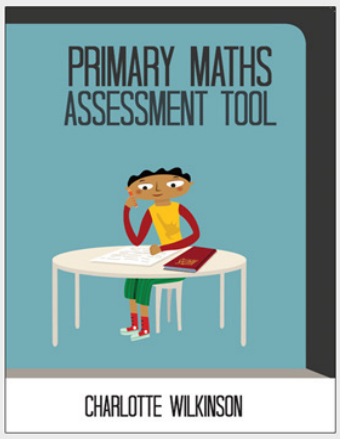
Content Ideas for the new unit standards:

- Fluently and flexibly solve problems that require operations on number, understanding the relative size of those numbers and making sense of the answer in context.
- Recognise and work with mathematical relationships
- Understand and use the spatial properties and representations of objects
- Understand and use systems to locate and navigate.
- Use numbers and units to measure and express attributes of objects and events as quantities, to a degree of precision appropriate to the context.
- Understand and reason with statistics and data
- Use probability to interpret situations that involve elements of chance.

The list of content ideas reflects ALL strands of the curriculum and as mathematical knowledge is hierarchical, new knowledge builds onto known, it is imperative that all strands are thoroughly covered from level 1 through level 2 and level 3

That to be numerate means complete mastery of level 4 and are ready to work at level 5 and assessed at this level in year 11 does not mean Primary and Intermediate schools should lower their expectations on all students.
Maintain high expectations but the idea that all Year 8 students will achieve or even be working at level 4 is an unrealistic goal. (National Standards for year 7 & 8 were always aspirational). Level 4 requires multiplicative thinking and the way we think is dependent on the knowledge that we have and are able to use. What is does mean we should be teaching students to build their knowledge and skills and have a positive attitude to mathematics learning. Accept that for some (actually most) mathematics is a subject that requires perserverance and practice.

While problem solving involves our students in reasoning and grappling with ideas they also need time to practice knowledge and skills. Some things need to be taught, not all knowledge can be "discovered". Identify exactly what essential knowledge and skills students have and what are the gaps that will hinder progress.
The removal of structured mathematics textbooks from classrooms has had both positive and negative results. Teachers now need to have a very good idea of the content knowledge required, how it builds and how it integrates across strands. This is not covered in initial teacher training and needs to be consciously developed over many years. Textbooks and teacher guides support this development.
A maths scheme called Maths Aotearoa is available now for level 2 and for level 1 in March - the textbooks/activity cards have plenty of opportunity for applying, reasoning and problem solving. Structured knowledge building with further practice workbooks for those students who need them are available to download from the Wilkie Way members area.



Maths Aotearoa is available from
www.edify.co.nz
(This series is the 3rd Edition of Pearson Mathematics and also contains links to Figure it Out)
To assess the development of using and applying mathematics from level 1 to level 4 involving other strands at the higher levels, use PMAT the Primary Mathematics Assessment Tool also available from Edify.

Wilkie Way Assessment Screens

- **Identify what students already know and is available to be built on.**
- **Identify gaps that could hinder further progress**

Available from the online store www.wilkieway.co.nz
Copies of teacher guides also available in Members Area

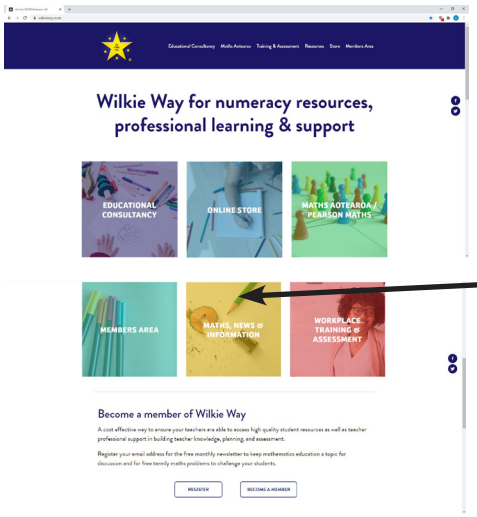
Knowledge and Skills Level 1 Level 2 Level 3 Level 4

- **Number knowledge from Counting through to understanding the place value system, whole number & decimal**
- **Addition and subtraction operations including estimation, recall, mental and written algorithm and the inverse relationship**
- **Multiplication & Division including what it is, estimation, recall, mental and written algorithms and the inverse relationship**
- **Fractions - of shape, number, ordering, equivalent, relationship with multiplication & division**
- **Decimals - as fractions and as an extension of the number system, fraction/decimal/ percentage conversions**

Resources for Wilkie Way Members

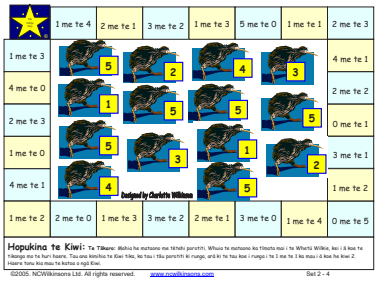
Subscriptions purchased at the online store at www.wilkieway.co.nz

Individual $45 - paid via paypal
NZ School paid via invoice - complete form at online store
Up to 100 students $150+GST
101 - 300 students $250 + GST
300+ students $350 +GST
Non NZ School $400 - paid via paypal



A powerpoint guide to the members area is now available to download to give you an idea of how to subscribe, the wide range of resources available to members and how the resources are arranged for easy access.

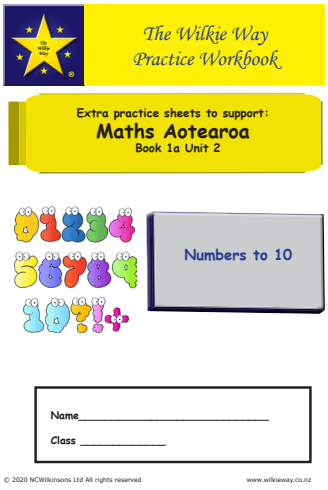
On the home page www.wilkieway.co.nz click the yellow icon to find the link to the download of the powerpoint.



New Uploads for February 2021

Early Numeracy Games

- Te Reo Versions of all the Early numeracy games (60 games in 12 sets)

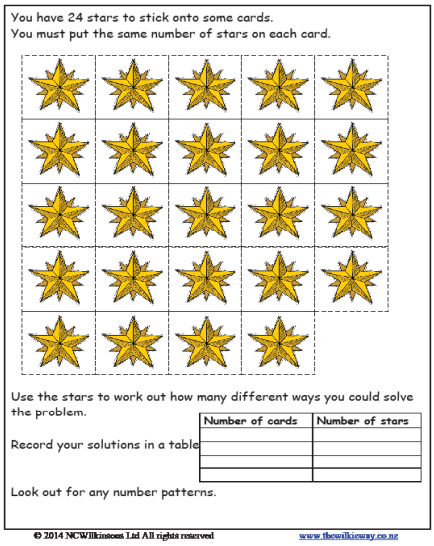


Maths Aotearoa workbooks
Updated 2 of the 12 level 1a

- Numbers to 10 (added missing pictures)
- Doubles to 20 (replaced most pages to focus on recall of doubles to 12 and introduce doubles to 20 - recall of doubles and halves to 20 will be a workbook at level 1b)

Student Resources
Multiplication & Division Level 2

- A patterns and relationship activity - a Star problem

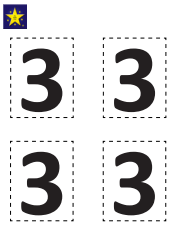


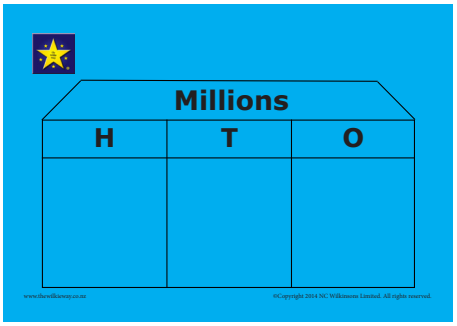
Equipment Resources & Fractions Decimals & %

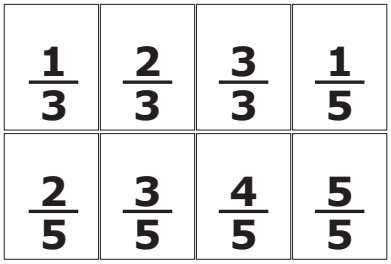
- Fraction cards for halves, thirds, quarters, fifths, sixths, sevenths, eighths ninths & tenths

Equipment Resources & Place Value

- Digit Cards
- Place Value Houses





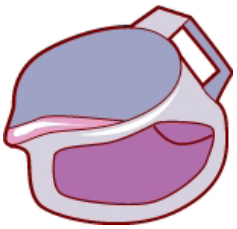


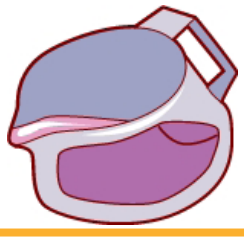
The Wilkie Way

Problems with Jugs

A small jug holds 2 glasses of water.
A large jug holds 4 small jugs of water.

How many glasses of water can you pour from the big jug?





A small jug holds 250mL of water.
A large jug holds 8 small jugs of water.

How many glasses of water could you pour from the big jug if a glass holds 200mL?

A mug holds 250mL.
Nathan pours 6 mugs of juice from a full jug.

During the day he poured 15 jugs of juice.

How many litres of juice did he use?

The capacity of a large jug is 3 times greater than the capacity of the smaller jugs.
The capacity of a glass is one third of the small jug.

If Pita empties the large jug 4 times into the smaller jugs.
How many small jugs will she need?

She then pours from the small jug into glasses.
How many glasses can she fill?