



The Wilkie Way

Newsletter March 2024

www.wilkieway.co.nz

Why are fractions so difficult?

This is nothing new - back in the 16th century a Dutchman, Simon Stevin became the Minister of Finance and quickly recognised a need for accurate accounting. He found fractional calculations cumbersome so he looked to invent a system that was both precise and tidy. He looked to the Italian arithmeticians of the Renaissance period and the Hindu Arabic notation system (Our whole number system) that had been transmitted to Europe by Leonardo of Pisa.

Stevin invented a base ten system (decimal) and published his new notation system, advertising it as a business tool in which all computations met in the course of business may be performed by integers alone without the aid of fractions. His notation did not include the decimal point, but it quickly led to today's decimal system of notation.

Stevin's notation looked like this: 4 (0) 6 (1) 7 (2)

(0)

indicated a whole number

(1)

indicated tenths

(2)

indicated hundredths (and so on)

As people got used to the system they no longer used the (1) or (2)

They kept only the (0) which over time shrunk and simplified into the decimal point we use today.

While we use a decimal point, many countries use a comma to separate the whole number from the decimal fraction part of the number which is a reason for using a space to separate groups of three digits in larger whole numbers rather than a comma.

To make sense of decimals, students require a good knowledge of the whole number place value structure of numbers, the belief that a fraction is a number and that numbers exist between the whole numbers and that all numbers can have multiple names (equivalent fractions)

Students who struggle to fit fractions on a numberline would have difficulty in making sense of decimal numbers.

Refreshed Curriculum: Year 4 progress step:

- represent common fractions, including those greater than 1 on a number line

The Language of Fractions

The words half and quarter are far removed from the number of equal parts, two and four

The words third, fourth fifth etc can easily be confused with their ordinal meaning 3rd 4th 5th etc.

Numerator and denominator are hard words to remember as they do not connect to previous knowledge.

Whole can be confused with hole and is disconnected from the concept of one when whole can also mean a whole group involving another number other than one.

I have been working in a rumaki class and observing a lesson on the teaching of fractions, and while I have a very rudimentary knowledge of te reo Maori I was amazed to find I could easily follow the lesson as the language made complete sense.

Students should be very familiar with the number words - there are only ten of them in the range 0 - 100 as compared to the 29 words in English.

Increase your use of te reo Maori in mathematics by adding in the fraction words to assist students with connecting language with symbols with representations.

half - haurua
third - hatoru
quarter - hauwhā
fifth - haurima

one quarter - kotahi te hauwhā

three fifths - e toru nga haurima

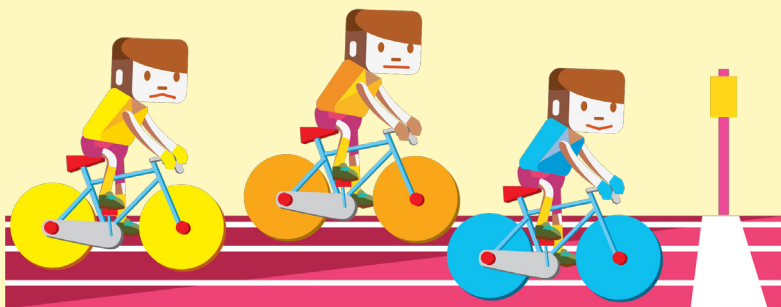
numerator - tau a runga (number on top)

denominator - tau a raro (number on bottom)

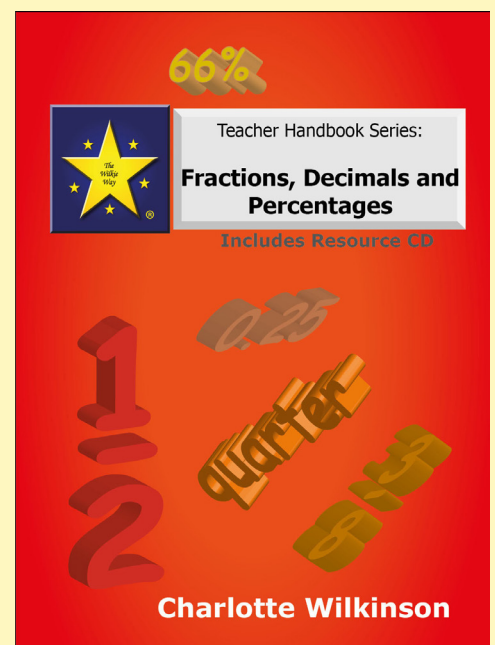
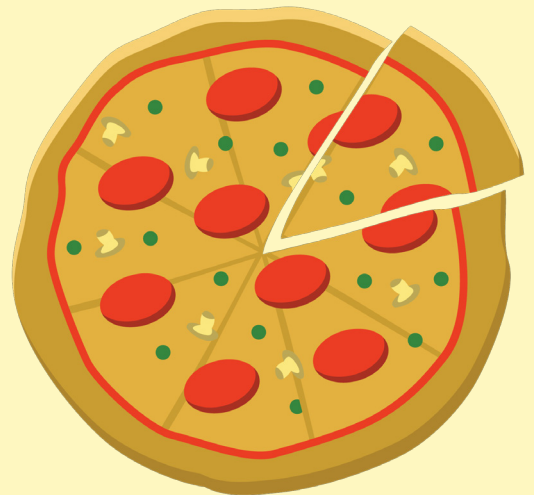
one whole - te katoa (wholly, completely, all encompassing)

third meaning 3rd is tua toru

fifth meaning 5th is tua rima



In the USA the word quarter has a completely different meaning in that it refers to a unit of money, a specific coin with a value of 25 cents, a quarter of a dollar.



Teacher Handbook available from the online store at wilkieyay.co.nz

Wilkie Way Education Consultancy

Regionally allocated funding for professional development in mathematics could be applied for but only under the heading Assessment and aromatawai. The application round has closed on 31 May.

Anyone who has applied for funding I will be unable to assist you as the delivery must be completed before the end of the school year and my diary is full for 2024. However there may be specialist facilitators who work under the same umbrella company Learning Adventures Limited who may be able to help you. Email me and I can point you in the right direction.

If you are considering Mathematics PLD in 2025 then please register an expression of interest with me if you would like to use me as a facilitator for either RAPLD funding if you are successful in obtaining hours for 2025 or for school funded PLD.

I have started a new section on the Education Consultancy page. This section is free for all teachers and contains professional readings which will be changed regularly. (Aiming for termly)

The readings will always be available in the professional readings section of the membership site.

Current readings are: Early Years Mathematics
Arithmetic Properties



Self Directed Professional Learning

Email: charlotte@ncwilkinsons.com or use the contact form on the website wilkieWay.co.nz



The Wilkie Way Teacher Challenge



Challenge 1:

Divide \$25 into two parts so that one part is 49 times more than the other part.



Challenge 2:



A group of 60 tourists arrived at Auckland Airport:
12 of them had neither NZ dollars or American dollars
25 had NZ dollars and 40 had American dollars

How many tourists had both NZ and American dollars?

New Resources for Wilkie Way Members

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

Individual \$55 - paid via paypal

NZ School paid via invoice - complete form at online store

Under 30 Students \$60 + GST 30 to 100 students \$160+GST
 101 - 300 students \$260 + GST 301- 500 students \$360 +GST
 501 - 700 Students \$460 + GST 701+ Students \$560 + GST

Non NZ School \$660 - paid via paypal



The year 7 & 8 tracking sheets will be completed before the end of this term. I am also working on maintenance sheets.

As part of the "old" Pearson Maths there were Maintenance books published as write on books for levels 3 and 4. Edify have decided not to do a third edition of these books. I have therefore negotiated the right to use the material (The copyright isn't mine) and will be creating a new section in the membership area for maintenance sheets.

Maintenance sheets will become available from year 3 to year 8, level 2 to level 4. I will do 9 for each year before uploading and then build up to 4 sets of 9 for each year, a set for each term of the school year.

Maintenance means practicing what I already know but may forget if I don't use it occasionally and keep it ready to build onto when I meet the topic again.

Wilkie Way Maintenance

3a
1.1

Name: _____
Date: _____

A.

1. $12 + 7 =$
2. $5 + 13 =$
3. $11 + 8 =$
4. $14 + 4 =$
5. $3 + 16 =$
6. $7 + 8 =$
7. $6 + 5 =$
8. $9 + 6 =$
9. $7 + 9 =$
10. $7 + 6 =$

B.

1. $36 + 29 =$
2. $47 + 19 =$
3. $64 + 39 =$
4. $53 + 29 =$
5. $125 + 199 =$

C.

1. $7 \times 2 =$
2. $3 \times 4 =$
3. $5 \times 8 =$
4. $3 \times 10 =$
5. $4 \times 4 =$
6. $2 \times 9 =$
7. $3 \times 5 =$
8. $6 \times 3 =$
9. $10 \times 4 =$
10. $7 \times 3 =$

D. Colour in half of each shape

E.

1. There were 23 students on the school bus. At the next stop 8 students got on the bus and the next stop 7 more students got on. The bus arrived at school with how many students?

2. The school bus can seat 48 students. If 56 students need to catch the bus how many would have to stand?

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There are a very limited number of assessment screens at a discount price available for levels 1, 2 and 3. Some are even year and some are odd year. Try them out on a handful of students to see the valuable amount of information that can be gained from this assessment. (See the online store at wilkieWAY.co.nz)

The assessment screens have been slightly modified for 2025 to reflect the refreshed curriculum with level 1 screen for years 1 & 2, level 2 for years 3 & 4, level 3 for years 5 & 6 and level 4 for years 7 & 8

If students are on track then the level 1 screen after 6 months (which is the earliest I would attempt the screen) students would score 8% - 20% (I would fill in what the student knows rather than sit the student down to complete the few questions they could do)

By end of year 1, beginning of year 2 students should score 30% - 60%, by end of year 2 80% - 100%

Beginning year 3, year 5 year 7 students should score 15% - 25% on the screen for the year group

End of year 3, year 5, year 7, beginning year 4, year 6 year 8 students should score 40% - 60%

End of year 4, year 6, year 8 students should score 80% - 100%

Within the overall score you will be able to see strength and weaknesses and plan a programme of work to ensure continued progress. The same screen is used at the beginning and end of each year so students can also measure their progress.

Register your email address for a copy of the preorder form sent out in term 4 to receive the 15% discount on the normal price of the screens.

Use the contact form on the website wilkieWAY.co.nz with Assessment Screen Preorder in the message box.