



The Wilkie Way

Newsletter February 2011

Welcome back to a New Year

Some things to look forward to:

Pearson Mathematics:

- Interactive Teaching and Learning Tools (for levels 1 – 4)
- Assessment Tool (levels 1 – 4)
- Level 3 and 4 Maintenance Workbooks
- Level One Activity Cards – Using Mathematics in Science Activities

Wilkie Way:

- Black line Masters for Level 2
- Support for the teaching of fractions

What is the importance of algebra to the real world?

Most people think algebra is a total waste of time and of little relevance to most people in the real world. When they think of algebra they think of meaningless x's and y's and complicated looking formulas. This view of algebra is a result of our experiences of algebra when introduced at secondary school level as a separate topic to all previous work studied in mathematics. It is a totally misconceived idea and the uses of algebra in the real world are around us all the time and becoming more important in the way we use mathematics in the 21st century.

Mathematics is the exploration and use of patterns and relationships in quantities, space and time.

- Quantities can be compared without assigning numerical values to them;
- The relationship between quantities can be equal or not equal;
- This relationship remains unchanged if you break one or both quantities into smaller parts.

It is expected that students will follow a programme that includes algebraic reasoning at all levels and use it to solve problems. The requirements at each level are set out under the heading **Equations and expressions** and **Patterns and relationships**. The two headings are the only ones that continue from level 1 to level 8



The Wilkie Way

Newsletter February 2011

As more industries adopt new technologies mathematical reasoning will be of equal importance as mathematical facts. This will not only be critical for top professionals but also for those at ALL skill levels in the workforce. The world will need a workforce that is comfortable with ideas and abstractions, can adapt flexibly to changes and can generalize and synthesize.

To meet this demand any mathematical programme must be based around conceptual understanding and problem solving. Algebraic reasoning is a way of thinking that reflects the core skills and underlying principles supporting number relationships and operations and should be integrated into all levels of arithmetic instruction.

Algebraic thinking includes:

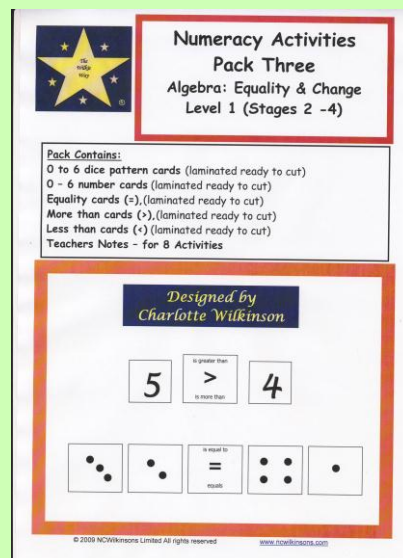
- Looking for structure (patterns and regularities) to make sense of situations
- Generalizing beyond the specific by using symbols for variable quantities
- Representing relationships systematically with tables, graphs and equations
- Reasoning logically to address/solve new problems

By providing opportunities to generalise the relationships and properties of arithmetic at an early stage of learning (Level 1) increases students' chance for success in a formal algebra class.

Furthermore algebraic reasoning gives a logical coherence to arithmetic procedures which are often perceived to be arbitrary and incoherent.

A common misunderstanding among students is the meaning of the equals sign. It is important that students learn the meaning of equality and not that = means "give the answer" Students need to experience equations such as $3 + 4 = 2 + 5$ and focus on what has changed and not that both sides equal seven. The 3 has become one less and the 4 is one more. Therefore they must be equal.

Students should also have experience of $>$ and $<$ symbols as these symbols are the two lines of the equal sign but no longer parallel; one end is less than the other and because we read from left to right, $>$ is read as "greater than" and $<$ as "less than"



Order online www.ncwilkinsons.com/wilkieway

\$15.50



The Wilkie Way

Newsletter February 2011

Have you booked your professional development for this term?

Hamilton 13 14 February
Auckland 1 2 3 4 8 9 March ,
Wellington 7 8 April
Christchurch 5 6 April

Teaching Maths at Level 1 – 2 (focus on basic facts, algebraic reasoning, early PV)

Teaching Maths and levels 2 - 3 (focus developing PV, teaching multiplication)

Teaching Mathematics at levels 3 – 4 (focus fractions, decimals and proportional reasoning)

Contact judith.marecek@pearsoned.co.nz to book your place

Gisborne 30 March

Getting to grips with Fractions and Decimals aimed at teachers of level 3 -4, years 5 – 10

Contact jenny@gisborne.net.nz to book your place

Invercargill 11 12 April

Dunedin 13 14 April

Implementing Inquiry Learning & a Problem Solving Approach – aimed at year 3 - 8

Teacher Aides supporting Teaching and Learning of Numeracy – all year levels supporting levels 1 – 3

Contact inservice@otago.ac.nz to book your place

In school professional development – if you are considering in school professional development within the next couple of years **I am now taking provisional bookings for 2012 and 2013.** (I am fully booked for 2011 and partially booked for 2012.

Expressions of interest will be dealt with strictly in order of contact.

Contact charlotte@ncwilkinsons.com for further information or to make a provisional booking for services



The Wilkie Way

Newsletter February 2011

Some problems to cause thinking

Draw and colour the pebbles.

I gave two of each colour to my friend. How many did I give away?

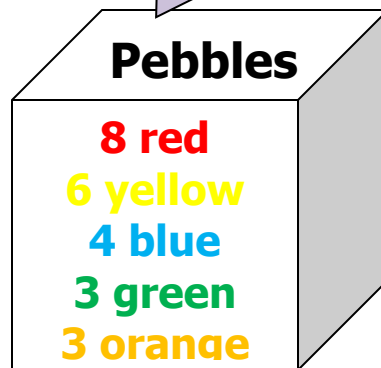
Jay ate the blue and green pebbles and Sam ate all the yellow pebbles and 1 red one. Who ate more?

How many pebbles in the box altogether?

I bought a box of pebbles and inside were

Write some pebble problems of your own.

I ate $\frac{1}{2}$ the red ones, $\frac{1}{3}$ of the yellow ones, $\frac{3}{4}$ of the blue ones, $\frac{2}{3}$ of the green ones and $\frac{3}{3}$ of the orange ones.



I found one more yellow marble hiding in the box. Give the proportion of each colour as a percentage.

How many pebbles did I eat?

What proportion of the pebbles in the box is red? Is yellow? Is blue? Is green? Is orange?

I bought some more boxes and all were exactly the same. I emptied them into a big bowl. There were 48 red pebbles. How many of each of the other colours would there be?

If you not wish to receive this newsletter please hit reply and ask to be removed from the mailing list. If you know anyone who would like to receive the newsletter please send their email address to charlotte@ncwilkinsons.com