

Maths at Devonport Primary School is based on the NZ curriculum.

The curriculum is divided into three parts

• **Number and Algebra**

Strategies and knowledge
Equations and expressions
Patterns and relationships

• **Geometry and Measurement**



Measurement
Shape
Position and orientation
Transformation

• **Statistics**

Investigation
Statistical literacy
Probability



It is expected that students will move through Levels 1-3 of curriculum objectives during Years 1-6. At Devonport we have a number of students also working at Levels 4 and 5.

So what is Numeracy?

Numeracy refers to the use of number operations to solve math problems.

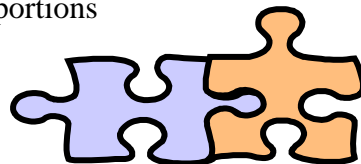
In the Junior School 70% of the Math programme focuses on Numeracy but this slowly susumes to around 50% by Year 6.

The programme in this strand encompasses the teaching of

Knowledge ↔ **Strategies**

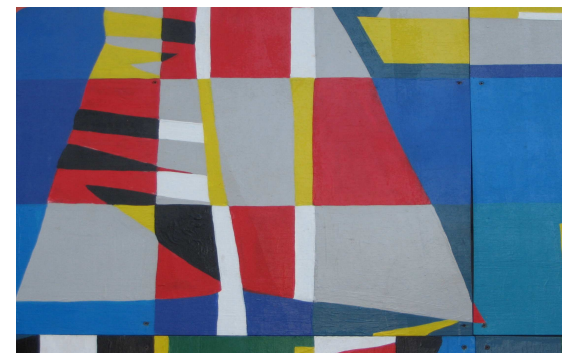
Knowledge enables strategy development and strategy development creates knowledge

- Numeracy teaching emphasises both
- Mental strategies (ways of thinking) allow more than one way to the answer rather than a fixed way of working things out
- As children develop knowledge they also learn to use more and more complex strategies to solve math equations and problems
- There are 8 strategy stages
- Stages are not equal. Students typically move faster through early stages.
- Can be at different stage for work in different areas.....addition/ subtraction. Multiplication/ division or fractions/ proportions



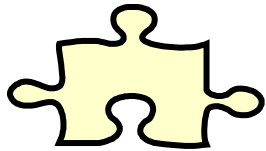
What about basic facts?

Children need to learn basic addition/ subtraction facts and their tables to 12 times. If children can recall these facts easily from memory, the ability to use strategies and algorithmys are made much easier.



What about writing in books?

A lot of Math learning happens through discussion and manipulation of materials. While babies learn largely through their mouth, by early school years much learning happens through their hands....touching and talking. "Hands on" experience is critical to mental development of children in Math and students can be seen throughout the school working with materials. Students will learn to record their ideas in equations and other means but this happens more as children move through the school.



What are snapshots?

- Assessments of the strategy or knowledge level of a student. This provides information for both the teacher and student about what they need to work on next.
- Provides information for the school as a whole so we can target funding and staff training to areas of need.
- identify a student's current skill and knowledge level and what that student needs to learn in order to move to the next strategy stage.



Why can children get good scores at primary and falter later?

If students are taught “one right way” as a formula to solve a math problem, they are often unable to “see” the underlying principles and patterns that will help them with algebra.



Examples of different strategies students might use

Bill has \$650 in his bank account. He takes out \$398 to buy a new surfboard. How much money is left in the account?”

I turn it into adding

- $398+2=400$
- $400+200=600$
- $600+50+650$ so
- $2+200+50=252$

I imagine a number line

- 650 to 400=250
- 400 to 398+2
- So the answer is 252

I think of 650

- $\begin{array}{r} 650 \\ -398 \\ \hline \end{array}$
- and go 0 take away 8 won't go, cross out the 5 and make it a 4 and the 0 a ten, 10 take away 3=2 etc

I use tidy numbers

- $650-400=250$ so
- $650-398=252$