

Working Mathematically Curriculum Scaffold



This document is copyright free.
Please acknowledge the source.

<http://www.mathematicscentre.com>

FOCUS

The big idea is that:

All students can learn to work like a mathematician.

DIMENSIONS

There are several overlapping dimensions to this idea:

- Mathematicians learning to count.
- Mathematicians learning to reason.
- Mathematicians learning to measure.
- Mathematicians learning to make connections.
- Mathematicians learning about shape and space.
- Mathematicians learning to predict random events.
- Mathematicians learning to communicate with others.

STRUCTURES

To assist in the exploration of these dimensions we arbitrarily use structures to guide our planning. One successful example of a structure is Maths With Attitude:

- Number & Computation
- Pattern & Algebra
- Space & Logic
- Chance & Measurement
- Teacher team selection from local best practice

Another structure (not necessarily as successful) is a sequence of text book chapters.

PROBLEM-BASED UNITS

Within any planning structure:

- We build units to draw focus to particular aspects of the dimensions.
- Often a unit includes aspects of several dimensions.
- Units bring best teaching practice into coalition with content and context.
- Therefore, to generate purpose and interest within any unit we *choose* both problems to explore, and pedagogy to present them, because *interesting problems are the starting point for the work of all mathematicians*.
- Doing so begs the question: *How do mathematicians go about solving problems?* which kindles yet another experience of learning to work like a mathematician.
- The problems chosen to fuel the units are presented through a balance of:
 - Whole class investigations
... modelling how a mathematician works
 - Tasks
... invitations to work independently as a mathematician
 - Tool/skill practice
... to support learner mathematicians to more effectively tackle other problems
... in Years K-8 Calculating Changes offers many activities for this purpose
- So each and every unit brings students back to the Working Mathematically Process.

The whole thing is not linear - it's a web.