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Welcome to **ATTACK!** a two-page occasional publication. Most of **ATTACK!** will be concerned with the holistic curriculum which, if acted on, is a fundamental way to undermine the present undemocratic education system. Don't be discouraged if opportunities to teach holistically are limited, do your best, be a guardian, and act as a witness to this culturally significant and inspiring way of teaching and learning. **ATTACK!** is a partner to <https://networkkonnet.wordpress.com>

Holistic mathematics Part 2

In **Attack! 15**, a programme was described that had its basis in the numeracy programme but from there was profoundly revised and adapted to the holistic. This article is a follow-up to that, providing more specific programme detail. Dan Murphy, principal of Winchester School and former maths adviser, has taken his teachers on a holistic mathematics journey.

The principles followed were:

- Dispensing with ability grouping
- Dispensing with the levels and stages of the numeracy project
- Reducing assessment procedures to a minimum
- Basing programmes on problem solving
- Using contexts for learning that are real
- Having all children work on the same problem but in ways appropriate to them
- Having children learn in a social setting to encourage reasoning and discussion
- Paying close attention to the learning strategies of low achieving children
- Avoiding breaking learning into small measurable steps
- Basing programmes on a mix of commercial programmes and teacher developed mathematics units – the commercial programmes being, however, only a small part of the overall teaching programme, mainly serving as a model for the teacher developed units.



The Australian online programme *Maths300* is one commercial source and anything by the Australian maths, semi-retired expert Charles Lovitt. Last year Charles Lovitt visited Winchester School.

I asked Dan his view of the 6 July, 2013 article in the *Education Gazette*, headed 'Mangere East students can't get enough of "Bobbie maths".'

He said:

'Oddly enough I was reading this article last night at home. Earlier this year we entered into a programme with Massey University (Albany Campus) and their 4th year students functioning on very similar lines to our maths. We entered because I actually saw Massey University moving the teaching of maths in a positive direction and were excited by it. The lecturers are unhappy with the ability groups and rigged teaching programme of the Numeracy Project. They also dislike the restrictive nature of using WALTs, and so on. I like their thinking and hope they can be a big influence on teachers. I am deliberately fostering this relationship with them. The Bobbie Hunter referred to is from Massey Albany campus. She also has a daughter, Jodie Hunter, working at Massey in Palmerston North in Mathematics Education. The project is going across both campuses. Whilst it is not the same thing we are doing, it is very similar, and has the

same education principles behind it – the concept of mixed abilities working together, discussing, clarifying, and building maths knowledge to solve complex problems; and the use of contexts meaningful to children; and the focus on engaging them in hands-on problem solving. All of this is a far more meaningful way for Maori and Pasifika children – well, for all children. I fully endorse what I read in the article and hope that teachers around NZ realise there is a better way to teach maths than breaking it into small isolated packets of knowledge purely for the purpose of measurement – which as you know is for managerial purposes – not educational.'

Dan now comments again on the mathematics programme at Winchester:

- Winchester School subscribes to *Maths300* which is principally an online programme [There are and will be other such maths programmes available – this is just to demonstrate the kinds of programme that could be used and how they could fit into a maths programme overall]
- The lessons from *Maths300* are used both for teaching and as a model. We have summarised the *Maths300* lessons into one-page summaries so that teachers can quickly get an overview of a Rich Lesson. (The *Maths300* lessons are many pages long with detailed instructions.) A lesson is typically several days' work, not a one-off lesson
- Units devised by teachers form by far the bulk of the maths programme
- Lessons are generally taught in a Menu of several lessons along a similar theme or mathematical strand, thus creating a Rich Unit of Rich Lessons
- The Rich Lessons are driven by a concept called 'Thinking Mathematically'. In 'thinking mathematically' we teach children to think like mathematicians. First, though, we have to get the children interested. Each lesson begins with a story shell, which is designed to capture children's interest and engage them in the process
- The lessons are based on the concept that children have multiple entry levels and multiple exit levels. All problems can be extended and there is always ... and what else? All children can begin the problem but some will take it further than others
- Most importantly you will notice the lessons are not graded to one level. Children can do these problems as they bring their knowledge to the problem. There is no such thing as a y. 6 problem. Maths problems are maths problems.

The pages that follow:

- The chart that follows is an example of a Menu, in this case for Probability and Statistics. It comes from *Maths300* and was written by Charles Lovitt. The Menu provides a sense of security that coverage and balance is occurring.
- Following that is a lesson from *Maths300* that has been adapted from a detailed unit to a one-page unit.
- Finally, an example of a teacher-devised lesson, we call them contextual lessons. Teachers have become very skilled at developing them, producing dozens each year.

