SCHOOL SUPPORT SERVICES
Ratonga Tautoko for education advice.

ADVISOR NEWS
MATHEMATICS

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

Website http://schools.reap.org.nz/advisor • Mathematics • August 2005 • Term 3

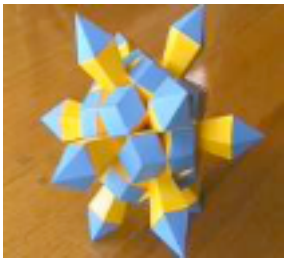
"Am I preparing your child for their future or your past?"

- reply given to a parent at a report evening.

I like this question. Can you imagine the conversation that preceded? What are the implications for your teaching and classroom space? How much of a part does the child construct?

Welcome to Term 3; summer is coming, the days will warm up. This term we have:-

- WAIMAT Quiz 18th August, Hamilton Gardens
- BOPMA Quiz, 24th August, Mt Maunganui Col
- Math Week, August 22 to 26th...REGISTER!
- Census at School, REGISTER!
- NCEA Scholarship Training
- Math HOD Day, Hamilton Aug 30th, Rotorua Sep 1st
- NZAMT Conf, Christchurch, 27-30 September



Please register for the quiz events. The organisers need to have this information well ahead of time. Information will be in your pigeon holes from WAIMAT and BOPMA.

Secondary Numeracy Pilot Project Update

Progress is being made and changes are beginning to happen. One of the most significant changes is that of teachers' understanding of just where students are in the learning of mathematics. "Why did I not know this before?" is a common question from teachers on the project. This has directed the project to what teachers need to learn to help students understand mathematics and succeed.

The pilot project has been extended for two more years and a further four teachers will be trained to work with 12 other teachers in 2006 and likewise 2007. Funding is also provided to sustain the existing schools. If your school is interested and prepared to make numeracy training the main focus for the mathematics teachers then please make sure you contact me as regional co-ordinator. There are still some places for 2006 and 2007.

Make use of the free resources at **www.nzmaths.co.nz** like the lesson planner, the excellent news letter and online tutorial. **TKI** is a huge resource worthy of exploring with many ready to use ideas, lessons, activities and hundreds of website links to mathematics.

SURVEY ATTACHED

I would like to know which schools contribute to your yearly intake of students. I will use the information to help plan which schools become SNP for 2006 and 2007.

This is also an important exercise for the HOD. One reason for this is that some of these schools will have been on the Numeracy Project and the teachers of these students should know this information. These teachers can then build and extend the work that has been done by the primary teachers in mathematics.

Another reason, as important, is to give these teachers the opportunity to visit the contributing schools to see their future students working and to establish a professional relationship and exchange numeracy data about the students.

Please convey any questions or comments you have about this mathematics project at any time.

The Education Weekly Work Study Survey

See Vol 16 #627 and #628 several pages about the workload of teachers. This survey reveals the high hours per week worked by teachers is similar to teachers in other countries and in similar professions. Does this help? The report even says the administrative tasks like assessment and student management dominate the workload. Is this surprising? The research indicated manageability of workload relates more to stress than to the number of hours worked. Well, well, well!

The report does list some suggestions for overcoming these issues. Included are developing collaborative planning, working smarter, delegating administrative tasks and of course PD in knowledge and skills. I suggest time to reflect alone and with others also.

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http://schools.reap.org.nz/advisor
Jim Hogan, Adviser in Mathematics (Secondary)
Rotorua School Support Services, 1358 Hinemoa Street, PO Box 935, Rotorua
Phone 07 348 9079, Fax 07 349 2214, Mobile 027 278 5458, Email jimhogan@clear.net.nz

Mathemagic Teacher • Waikato/Bay of Plenty
Belisha Price • Cambridge High School

Travelling the region I meet a very talented, dedicated and focused mathematics teaching community. People who take mathematics to a huge diversity of students in a wide variety of situations and communities. I intend to share some of these meetings in this newsletter in honour of you all.

I asked Belsiha to reflect on his teaching and pass on a favourite mathematical topic. He replies "Reflecting back over 30 years of teaching I see many changes. Students in our senior classes who once would have moved into apprenticeships and become very successful members of the work force, now stay on to and in many cases,struggle with maths 0 outcomes have been replaced with testing that has only 4 outcomes that do not really indicate how well a student has done at a particular level of achievement. Also there is a 'dumbing down' as I see it . To achieve in many Achievement Standards seems to be a very low standard compared with the School Certificate."

"On the plus side, the present system does give credit to a student who does well at a particular topic. The time constraints of the present syllabus have removed a certain amount of freedom of the classroom teacher to branch out and take students on other interesting voyages of discovery. When technology started to move into the education system I expected there to be less paperwork but this has not been the case and the paper trail is getting to the stage of burying me. Perhaps it's time to move on or buy shares in the paper mills."

"I don't have a favourite theorem but I do have a passion for polyhedra and geometry. I think my wife would describe it as an obsession ! My career in teaching started late as when I left school I was in turn a technician, soldier, psychiatric nurse, primary teacher for one year (I am primary trained) then a maths teacher permanently attached to CHS."

What is a Steinhaus Cube?

Geometrical Models
http://www.software3d.com

The models in Belishas' classroom are beautifully made examples and an inspiration to his students. They caught my eye as well. The portraits of the ancients gaze down on all in his room as if to keep his students on task. My visit encountered a class of Year 10 students learning quadratic expansion. I left them with this puzzle.

A 2x2 cm square has an area of 4 cm squared. What is the side length of a square with an area of **exactly** 8 cm squared?

What do you mean the students asked? A 3x3 has an area of 9 so the answer is somewhere between 2 and 3. **Ahha**! Out came the calculators and by trial and error the answer was refined to 2.828427 quite quickly. I left as they were beginning to get to "There must be a faster way!" and "Does this work with other numbers?" I am sure Belisha will entice these students to explore the squares and the myriad of patterns they possess.

Newsletter #45 from the **nzmaths.co.nz** website has some square number problems.

a. $11^2 = 121$ and $1+2+1 = 4$, a square likewise with 12^2 and 13^2. Always?

b. $3^2 + 4^2 = 5^2$

and $10^2 + 11^2 + 12^2 = 13^2 + 14^2$

Are there others? Is there a general rule?

c. $2^2 + 3^2 + 6^2 = 7^2$

and $4^2 + 5^2 + 20^2 = 21^2$

Is this always true? Make a model of it using unifix cubes to show the pattern.

Take care and enjoy a term of teaching. Ask good questions!

Jim Hogan
SEC MATHEMATICS ADVISOR, WAI/BOP