

**Newsletter No.1** 

March 2001

# **BECAUSE:**

- it's more fun that way;
- it leads to better learning;
- it gives you a better idea of what maths is all about; and
- it's the way that research mathematicians do it

we take a problem solving approach to the lessons. It's our basic philosophy of maths education and so all our material is based around a problem or an activity of some kind.

Hello everyone. From this month this year we are running a monthly newsletter to go with this web site. Now that you have registered for this newsletter it will be automatically emailed to you each month. In the newsletter we plan to have

- information regarding the site and its development;
- specific comments about different problems and units;
- discussions on various aspects of the learning and teaching of mathematics;
- your general comments and queries;
- hopefully, answers, comments and ideas from your students; and
- anything else that seems to be important to the teaching, learning and understanding of mathematics generally.

This means that we would like to have *your* contributions. Email us now (our email addresses are a little further on). What is troubling you? What would you find useful? How can we help you? How can you help us? None of this necessarily has to do with the site itself. So long as it's to do with maths, then we're interested and we think that other teachers will be too.

## WHO ARE WE?

This site is attached to the Ministry of Education's Te Kete Ipurangi site and is being developed by Gill Thomas and Derek Holton. To give you more idea of who we are here are some bioclips.

Gill has a primary teaching background and for the last five years has been Head of Department Mathematics at the Dunedin College of Education. From 2000 she is Director of Postgraudate study with responsibilities for the new Masters programme and Research in the College. Gill first worked with Derek when he supervised her PhD on a topic which focused on maths in junior classes. During that time Gill became interested in problem solving as an approach which required the students to "do the thinking". The professional development in mathematics of both pre-service and



practicing teachers is another of Gill's work "passions" and helps explain why the maths which underpins each of the problems or activities is discussed on the web site. Three teenage children, a dog, novels and early morning runs help maintain some balance in Gill's life.

Derek Holton is Professor of Pure Mathematics at the University of Otago. He has been interested in maths education for over 40 years. He came to New Zealand from Australia (after being brought up in England) in 1985. Since then he has helped to establish the New Zealand Mathematical Olympiad movement that sends a team of 6 to the International Mathematical Olympiad every year. In addition he has been on a number of national committees dealing with maths education. The most recent of these has been the Maths Expert Panel that has produced the Maths



Achievement Standards for the new National Certificate of Educational Achievement. Before the start of this web site project he had had little experience of primary maths. That almost entirely consisted of working on problem solving in schools with classes of students. But now, in addition to this web site, he gives a maths course (MATH 100) aimed at pre-service primary teachers. On his days off, he loves being outdoors with a camera photographing wild birds.

You can contact us through the email on the site or by using <u>gill@nzmaths.co.nz</u> or <u>derek@nzmaths.co.nz</u> for practical help or comments and <u>joe@nzmaths.co.nz</u> for technical assistance with the site.

#### WHAT'S NEW?

Algebra: Algebra appears for the first time this year after having been trialled at the end of 2000. To see the units that are currently available, go to the site's Home Page and click on the <u>algebra jigsaw puzzle piece</u>.

This section of the nzmaths site has a similar format to the Statistics, Geometry and Measurement components. So once you are in the Algebra section you can find <u>Background</u> <u>Information</u>, information on how the units are structured (<u>Unit Structure</u>) and the units of work themselves. The units are



linked to the two key aspects of Algebra; namely, patterns and functions.

**Problem Solving**: Each month we will tell which new problems have been added to this component of the site. We plan to add at least another 30 this year so let us know if there are any strands or levels you would particularly like us to write problems for. As this is the start of the year we do not have any new problems.

**Measurement:** This month we have added **Time Zones**, a level 4 unit which explores time zones with the help of a world clock and airline timetables.

## **INVOLVEMENT**

We'd love to hear from you. There may be a million things that you could tell us. How is the site? How can it be improved? How do you use the material? Are there any problems that are too hard/easy for the Level we have assigned them? Does your class have any answers to problems that we have not got on the web site? What is happening in your area? Please don't hold back. Send in your comments.

There are many problems on the site that have incomplete lists of answers. Please let us know what your class finds so that we can add these to the site.

#### WHAT'S ON IN MATHS?

There are two things in the wind that you might like to hear about. We'll give a preliminary announcement here and say more about them in later months. No doubt you will also see more information in the Gazette.

**Numeracy:** Three numeracy projects are currently underway. There is the Early Numeracy Project for years 1 to 3, the Advanced Numeracy Project for years 4 to 6, and an Exploratory Study for years 7 to 10. Many of you are probably involved in one of these. For more information see The Ministry of Education Curriculum Update No 45, February 2001.

**Exemplars:** Currently work is beginning on a National Exemplar Project. This is to provide exemplars of children's work in different learning areas, one of which is maths. Exemplars are annotated examples of children's work that will exemplify the various Levels of the curriculum. Work on this has just begun and will continue over the next two years so that it will not be until 2004 at the earliest that every school will have access to the exemplars. However, some of you will be assisting in the development of these.

#### **COMING EVENTS**

**NZAMT Conference:** Every other year the New Zealand Association of Mathematics Teachers holds a conference. The next conference will be in Wellington from 3 to 6 July this year. This is a valuable conference for both primary and secondary teachers. To find out more details try <u>www.nzamt.org.nz</u> or contact Sylvia Bishton at <u>sylvia.bishton@wce.ac.nz</u>. If you live in the Wellington area you have no excuse for not going. In our experience these conferences have been extremely worthwhile.

## **PROBLEM OF THE MONTH**

Each month we will find a problem for you to have a crack at (or to give to your students to try). The problem this month is a string of three problems that actually came from a student. Apparently the class was given the problems for homework and we were called on for help. Fortunately between Gill and Derek we were able to solve them. Can you? Here they are.

PART 1: Arrange 8 coins as we have done below. Now move just 4 coins to make a square that has 4 coins on each side



PART 2: Arrange seven coins in the way that we have shown below. Now add two more coins to form ten lines that have 3 coins in each line.



PART 3: Can you connect the 16 points below with just six straight lines without lifting your pencil off of the paper and without passing through any point more than once?



We hope that you will send us your solutions (or your class' solutions). We'll send a \$50 petrol voucher for the first/best solution that we receive. (Even the teacher that set the problem originally is eligible. Honestly we don't know who you are.)

We'd also appreciate problems from you for next months' problem. We'll be looking for sponsors so that we can give at least a \$50 petrol voucher to anyone who sends us a problem that we can use here. If anyone has any 'sponsorial' contacts we'd appreciate hearing about them.

All the best for your teaching.

Gill, Derek and Joe.