

Newsletter No. 210  
November, 2004

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## 2004 MAV Conference

**“Towards Excellence in Mathematics”  
Thursday 2<sup>nd</sup> & Friday 3<sup>rd</sup> December**

**Late bookings still available!**  
Have you booked in for the MAV conference? The closing date for applications has passed but there are still places available.

Remember, that at this point, computer sessions and many of the hands-on workshops may be fully booked, so choose the larger options. We also have over sixty exhibitors with the latest maths resources for your classroom.

To obtain a registration form contact the MAV office on 9380 2399 or visit:

<http://www.mav.vic.edu.au/pd/confs/index.html>

**Changes to Conference Program**

**Session A20** - Thursday 2<sup>nd</sup> December  
Kerryn Swann - *“Planning for Numeracy and Mathematical Thinking”* has been replaced with Mike Westbrook - *“Maths Games Days”*.

**Sessions B29 and C27** - Thursday 2<sup>nd</sup> December  
Noraini Idris - *“Creativity in Mathematics: Why Technology”* has been cancelled

**Registrations - We Want You!**

Anyone interested in helping with registration on Thursday and Friday morning of the Conference contact Julie or Kristen at the MAV Office. You will be required from 7.45am - 9.00am.

**Wishing you a  
Merry Christmas and a  
Happy New Year**

MAV wishes you a Merry Christmas, a happy new year and a safe holiday. This is the final mailout for 2004 so we will see you in February next year.



The MAV office is closed from Monday, 20 December 2004 and re-opens on Monday, 3 January 2005.

## PRIME Project Celebrates

The Portfolio Research in Mathematics and English (PRIME) project, conducted by Barbara Clarke, Brenton Doecke and Alan Bishop and researcher Nike Prince of Monash University with MAV, VATE and VIT as partners, recently held a Review Meeting and Celebration at Cliveden.

Participant teachers, assessors and researchers met, in some cases for the first time, to share experiences and feelings about processes and outcomes, but also to celebrate the efforts and achievements, in particular, of the teachers who volunteered to take part. Thank you and congratulations to the teachers involved for being willing to put together a Portfolio about their teaching practice and subjecting themselves to the subsequent evaluation. Thank you also to the MAV assessors (Linda Buckeridge, Rob Money, Peter Wyatt, Sharon Taylor, Phil Tascone and Ray Peck) who volunteered their (considerable) time to be trained and to assess the portfolios.

The findings of this study will help determine the most appropriate ways to guide the use of portfolios as evidence of teacher accomplishment against the National Standards. It is important to emphasise here that the AAMT (and therefore the State Affiliated Associations) developed and own the National Standards for Excellence in Teaching Mathematics and also intend to own any national accreditation process of accomplishment against the Standards, which will be *voluntary*. It is also important to make clear that the Standards provide a most useful way of guiding Professional Development programs and that preparing and submitting portfolios and sharing this process with others is in itself a rich professional learning experience.

The MAV commends the Monash team for the way in which they managed this interesting and challenging project. We wish them well with, and look forward to their report.

## From the President

### Doug's Top 10 (or are they?)

Some time ago, I had the pleasure of setting some 'homework' for Doug Williams (known to many MAV members as Black Douglas). As a recipient of one of his valuable email newsletters, I decided to ask him the following question:

*If a curriculum was constructed around 'Important Problems', what would those problems be? The answer to this question is relevant to the current debate around Essential Learning. Some problems could be chosen to illustrate and expose students to the so-called 'big ideas' of mathematics, but others could be chosen for the important issues they address in society. What would be Doug Williams' Top 10? And why?*

*I was both overwhelmed and challenged by his response. I print it here in full (with Doug's permission) for the interest of all.*

*Dear Ray,*

My first response to your request is that the only essential learning is that I should leave my education as a whole, human person displaying a willingness and capacity to think using a variety of strategies, to communicate with a variety of people using a variety of forms and to interact with the spirit which dwells within. You can read and view more of my thoughts about this concept at:

<http://www.blackdouglas.com.au/webpapr/curr2000/curr2000.htm>

*My next response is that it doesn't matter how this objective is achieved in education, because a person who displays as described will be prepared for the unknowns of life and work that will come. So, in this sense it doesn't matter what the school curriculum is as long as every aspect does contribute to the development of these persons. In a non-trite way I am trying to say it doesn't matter what we learn at school as*

*long as we learn to positively respect ourself and our relationships with others.*

*However, it does matter that whatever is chosen as contributing to the school curriculum should not hinder the development of these persons.*

*Past attempts at mathematics education have not scored well in this regard. At many levels it can be argued that maths curriculum (that term used in its broadest sense and not just meaning the curriculum documents) has damaged the self-image of many students.*

*Pivotal Problems, when developed within the meaning outlined in the ETuTE which has caught your attention, can make a major contribution to redressing this history. However, it is important to state before I nominate my current top ten as requested, that there are so many of these problems that teachers must see any move in this curriculum direction as one that offers choice of problem to achieve the same objectives - be they the essential learning objective I described in my first paragraph, or specific content objectives like some of those listed for Crossing The River in the ETuTE.*

*Finally, before making a list, let me cry out against the use of the words 'Important Problems'. Crossing The River has no importance in itself. The only important component in it is the teacher - like the one mentioned in the ETuTE - who can see a vision for the problem that contributes for better learning for their kids and better practice for themselves.*

*The importance is in how the problem is used - mathematically and pedagogically. It is teachers who will choose to use these problems. Consequently, the importance is in the teacher. All else must be focussed on supporting the teacher to do best what they do best.*

*So with that preamble, my Top 10 for this minute are below. Ask me five minutes from now and they will be different.*

*Sphinx: Tactile, visual, engages students from K - adult. Curriculum content in space, measurement, pattern, number, algebra*

*Uncover Counting and its currently developing cousin Rows & Straws: Can be threaded into the curriculum (a few minutes a day, a few times a week over several weeks) to support the construction of an array conception of multiplication and number sense associated with 'times tables' and 'long multiplication'. Links to algebra and graphing functions at the senior level.*

*What can you do with 9 pieces of paper?: A unit of number based puzzles (Number Tiles, Steps, Doctor Dart etc,) each of which is easy to state, easy to start and offers heaps of maths.*

*Four Cube Houses: 3d spatial with huge cross-curriculum links*

*Police Line Up: Language/logic basis, applicable at a large range of levels by altering the clue structure, easy to use as an assessment tool to gather information about kids number knowledge, huge cross-curriculum links*

*Collecting Points: Threading possibilities as described above but in relation to Place Value, conceptualisation and skill development. Surprises teachers how easy kids find it when teachers think it will be too hard for 'their kids'.*

*Predict A Count: Applicable from Prep to at least Year 8 on a four function calculator (especially if it handles integer arithmetic correctly). Non-threatening development of number sense.*

*Same or Different: Experiment which can be played at a range of levels to investigate fairness, but which has a huge mathematical sting in the tail for senior students which shows a random event being governed by the discriminant of a quadratic. What's more the explanation of the algebra of this leads back to a visual representation often developed by Year 2 kids.*

*Pyramid Puzzle: A visual, kinaesthetic doorway to Year 11/12+ algebra and mathematical history that lets kids in to the mathematics in a way that symbolic representation of the same problem couldn't.*

*Jumping Kangaroos: Which does for quadratic algebra everything that Crossing The River does for linear algebra.*

*Damn!! I am up to 10 already and I haven't included Fraction Estimation or Win At the Fair or Match Triangles or... or...*

*Keep smiling, Doug.*

I thank Doug for the time and thought he put into this response and commend his website above for further thought provoking reading. If you don't receive Doug's ETuTe and other email updates, you should.

#### **Other email lists.**

If you enjoy mathematical debate, discussion and information, you should also subscribe to AAMT's email list. Requests for advice and pedagogy are frequent topics. This list is also a great support for beginning teachers and department heads who can use it like an 'Ask Dr Maths Teacher' site. To do this, go to <http://www.aamt.edu.au/about/list/>. To be kept up-to-date with MAV news and activities, you should also subscribe to the MAV list by sending an email to Simon Pryor at: [spryor@mav.vic.edu.au](mailto:spryor@mav.vic.edu.au).

**Ray Peck  
President**

## Introducing New Councillor's for 2005

*Following the Annual General Meeting in September, the MAV would like to introduce two new Councillors for 2005*



**Councillor Linda Baron**, has been the Mathematics and Early Years Numeracy Coordinator for a number of years at Chirnside Park Primary School. She has also worked as a grade teacher and specialist in a number of other roles. Linda, really enjoys and is still learning about mathematics!

In the past she has worked as a Library Curriculum Consultant (prep-12) with teachers in school libraries. This involved lots of regional networking, professional development and work with publications. Linda has also had a stint as the Editor for the Victorian Rose Society.

Linda has just finished building a Victorian period house (She asks for our sympathy!) and is presently finishing off a Diploma of Horticulture. She is currently working in Reading Recovery and Art, but retains her love of teaching mathematics so perhaps that's why she has chosen to join the MAV; it will help keep the brain sharp!



**Councillor  
Anna  
Scorsonelli**

works at Killester College. She was originally from South Australia and spent 16 years working at Thomas More College. During her time at Thomas More College she taught Mathematics at both junior and senior levels and at all ability levels. Anna has been Head of Mathematics for a period of 3 years.

Anna has been heavily involved in the Numeracy Project which was coordinated by the Catholic Education Office in South Australia.

Anna has had the pleasure of being involved with the Mathematical Association of South Australia for 3 years and now looks forward to being an active member of the Mathematical Association of Victoria.



THE UNIVERSITY OF  
MELBOURNE

### Enrich your primary or secondary Maths teaching, expand your career options

What does current research tell us about teaching decimal numbers? How can you best integrate technologies such as CAS calculators into your school's program? How does an Australian classroom compare with mathematics classrooms around the world? What can you do for gifted students?

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The department also offers great opportunities for career advancement through postgraduate study in Science Education and Information Technology in Education.

For full information about Mathematics Education postgraduate courses, including entry requirements, visit:

[www.edfac.unimelb.edu.au/DSME/course/mathsed.shtml](http://www.edfac.unimelb.edu.au/DSME/course/mathsed.shtml)  
or tel. +61 3 8344 8443.

**Department of Science and  
Mathematics Education**  
Incorporating IT in Education  
and Health & Physical Education

www.unimelb.edu.au

# NATIONAL MATHS TALENT QUEST

The judging was held on Saturday, 2<sup>nd</sup> October here at Brunswick. Congratulations to all of the Victorian entrants. They received the following National awards:

## **Overall Winner Years 5-8**

Highvale Primary School

Class 5R – *That's the Way the Cookie Crumbles*

## **Level Winners**

### **Prep Individual**

Elise Hutchison – St Margaret's School, Berwick  
*Birthdays*

### **Year 1 Individual**

Amy Blackburn – Mornington Primary School  
*My Little Cavy*

### **Year 2 Class**

Ashby Primary School  
*Pencils for Viqueque Primary, East Timor*

### **Year 3 Class**

Melbourne Girls' Grammar School, Morris Hall  
*What Does Data Mean to Children?*

### **Year 3 Group–**

William Karras and Evan Tsaboukos – Carey Baptist Grammar School, Donvale  
*I Wish my Family Car Was a Ferrari*

### **Year 6 Class**

Glen Katherine Primary School  
Class 6F – *Glen Katherine Computer Usage*

## **Merit Awards**

### **Year 3 – Individual**

Mitchell Koller – Tecoma Primary School  
*My Maths Party Plan*

### **Year 4 – Class**

Princes Hill Primary School  
*Maths for Breakfast*

### **Year 5 Individual**

Alexander Gregory-Allen – Melbourne Grammar School (Grimwade House)  
*Mathematics and Newspapers*

### **Year 6 Individual**

Samitha Goonetilleke – Melbourne Girls' Grammar School (Morris Hall)  
*Thinking Styles of Mathematicians*

### **Year 7 Individual**

Ashtosh Ghosh – Camberwell Grammar School

Profit = Sales - Cost

### **Year 8 Individual**

Meagan Lowe – Korowa Anglican Girls' School  
*Bees in Spiral*

### **Year 10 Individual**

Matthew Mulvaney – Camberwell Grammar School

*Patterns with Recurring Decimals*

## **Participation Certificates**

### **Prep Class**

Plenty Parklands Primary School  
*An Orchestra of Maths*

### **Year 2 Class**

Camberwell South Primary School  
*Elves & The Shoemaker*

### **Year 4 Group**

Malvern Primary School  
*"Funds for Friends"*

### **Year 5 Group**

Scotch College Junior School  
*Green Your Garden from the Sky*

### **Year 9 Group**

Princes Hill Secondary College  
*Lottery Odds*

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Call: 1300 368 777

Email: [statistics@swin.edu.au](mailto:statistics@swin.edu.au)

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## Problem of the Month

### ARACHNOPHOBIA!

Two spiders walk across the  $xy$ -plane. The  $x$  and  $y$  coordinates of the first spider at time  $t$  seconds are

$$x = 10 + t \text{ and } y = t^2 - 4t + 17$$

The  $x$  and  $y$  coordinates of the second spider at time  $t$  seconds are

$$x = 2t \text{ and } y = 4t - 12$$



The paths of these two spiders touch at one point — find that point! Be sure to explain your reasoning along with giving your answer.

*Hint:* The two spiders do not get to that point at the same time!

### Answer to October Issue - “Problem of the Month”

- a. 4
- b. 1
- c. 72 square metres
- d. 1728. Answers may vary about what is special about this number. One answer is that it is  $12^3$ .
- e. 65, 80

## Web Review

Looking for new and different ideas for end-of-year activities? The following sites offer a range of activities across many areas of mathematics.

### Christmas Activity Sites

[http://www.bgfl.org/bgfl/custom/resources\\_ftp/client\\_ftp/ks2/other/xmas/#](http://www.bgfl.org/bgfl/custom/resources_ftp/client_ftp/ks2/other/xmas/#)

Lots of mathematical ideas including paper snowflakes, star-shaped gift box and 5-pointed star.

<http://www.northpole.com/Academy/Activities/>

Great P-3 activities including simple and advanced mazes; counting and writing numbers; connect the dots; drawing using a grid; position, right/left and sizing activities.

There are interactive games, stories, recipes and lots more.

<http://dimacs.rutgers.edu/~judyann/LP/lessons/12.days.pascal.html>

The Twelve Days of Christmas and Pascal's Triangle

<http://dimacs.rutgers.edu/~judyann/LP/lessons/12.days.html>

The Twelve Days of Christmas

These sites are part of the 'Exploring Discrete Mathematics in the Classroom' program.

### Christmas Paper Folding

<http://www.cardinspirations.co.uk/demo/teabag1.htm>

Christmas Tree Card

<http://www.successlink.org/great/g440.html>

Inspired by a visit to the Museum of Science and Industry display of “Christmas Trees Around the World”, 1996, these ornaments are direct applications of mathematical concepts. The ornaments function as manipulative teaching devices whether the instructor displays and describes a finished ornament or the student constructs an ornament. A brief history, description, application, or function is provided for most ornaments as well as suggestions for interdisciplinary connections.

## YEAR 5 STATEWIDE GAMES DAY AT ST CATHERINE'S SCHOOL



The Year 5 Statewide Games Day organized by St Catherine's School, in conjunction with the MAV, will be held on Tuesday, March 22, 2005, at St. Catherine's Junior School, Heyington Place, Toorak.

Schools may nominate one or two teams of four students each, at a fee of \$30 (including GST) per team. The day's activities will start at 9 - 9.30am for registration and conclude at approximately 2.30pm. Morning tea and lunch will be provided for accompanying teachers and parents. The Games Day promises to be one which is intellectually challenging, competitive and fun.

Details: Students need to bring morning tea, lunch, pens/pencils. No calculators are permitted.

Please detach the form below and mail it, along with your entry fee to the address shown below by Friday, March 4. Places tend to fill very quickly, so apply as soon as possible or you may miss out.

Make cheques payable to St Catherine's School (ABN: 90 004 251 816).

Further enquiries should be made to Karen McAsey on 03-9828 3062, or fax 03-9828 3058, or email: [karen.mcasey@stcatherines.net.au](mailto:karen.mcasey@stcatherines.net.au)

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### Tax Invoice

#### MATHEMATICS GAMES DAY FOR YEAR 5 STUDENTS, 22 MARCH 2005

St. Catherine's School  
17 Heyington Place  
Toorak VIC 3142

NAME OF SCHOOL: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

EMAIL: \_\_\_\_\_

TEACHER CONTACT: \_\_\_\_\_

NUMBER OF TEAMS: \_\_\_\_\_

Send this form with your payment to:  
Mrs. Karen McAsey, St. Catherine's School, 17 Heyington Pl., Toorak, VIC 3142

**IMPORTANT:** A completed copy of this form becomes a **Tax Invoice** on payment. Keep a copy of the completed form for your records. The original must be returned with your payment. Date: \_\_\_/\_\_\_/\_\_\_

**Note: Each school needs to provide a supervising teacher/parent.**



# The Mathematical Association of Victoria

ABN: 34 004 892 755

## Publications Order Form

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