

Professional Development Application Form Tax Invoice

School: _____

Address: _____

Postcode: _____

Telephone: _____ Fax: _____

Principal's Endorsement (if required): _____

MAV Membership: Institutional Individual Non-member

Please reserve places for the following:

Date	Venue (ie Bendigo)	Title of Session	Name of Attendees	Cost (inc. GST)
TOTAL COST INC. GST				

Note: The discount rate for 'Register for 4 and only pay for 3' only applies to bookings made at the same time.

Method of Payment:

I enclose a cheque/money order/purchase order for \$ _____ (made payable to MAV)

Purchase Order No. _____

OR

Please charge \$ _____ to my: Bankcard Mastercard VISA

Card Number:

Name on card: _____

Expiry Date: _____ Signature: _____

Please return this form to:

The Mathematical Association of Victoria (ABN 34 004 892 755)
Cliveden, 61 Blyth Street, BRUNSWICK VIC 3056, Tel. 9380 2399, Fax. 9389 0399

ACKNOWLEDGMENT LETTERS: Letters of acknowledgment are only sent out to attendees for full day professional development sessions. Those people attending after school professional development sessions will **only be** notified if a place is **NOT** available.

CANCELLATION:

If you are unable to attend a session that you have booked into, refunds will not be issued if you cancel your booking less than 2 working days prior to the day of the session. Bookings are transferable to another person.

NOTE: If you do not claim relevant discounts, a refund of the difference between the standard and discount price will only be issued upon a formal written request. In this instance, an administration fee of 25% (of the refund) will be deducted.

**Newsletter No. 205
June, 2004**

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Monday to Friday
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Print Post Approved
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Call For MTQ Judges

A great professional development opportunity. Come and help judge the 2004 MTQ. Collect new and exciting ideas for your classroom.

Judging takes place from Saturday, July 24 to Thursday, July 29 at Brunswick South West Primary School. Choose a time that suits you and make a day/evening of it.

The venue is close to both Lygon Street and Sydney Road, both with a fine array of eateries to choose from. A great way to wind down after a judging session.

Judging sessions are:

Saturday July 24	10am – 5pm
Monday July 26	5pm – 9pm
Tuesday July 27	5pm – 9pm
Wednesday July 28	5pm – 9pm
Thursday July 29	5pm – 9pm

For more information contact Nicole 03 9380 2399 or Doreen on 03 9389 0304. For a fax-back form, please go to page 12 of last month's issue (May) or alternatively visit our website on www.mav.vic.edu.au/studact/mtq.htm

MTQ - Entry Format

It's been brought to our attention that there was an error in the dimensions for the entry formats for MTQ Posters. The specifications are as follows:

No larger than a standard A1 sheet, which equates to 594mm x 841mm.

Annual Conference 2 & 3 December 2004

**'Towards Excellence in Mathematics'
Get your options in now!**

The deadline for options has been extended to the end of June. Register on-line at www.mav.vic.edu.au/pd/confs/index.html. Download an application form at the same address or call the office for a form. Contact Mary Walkinshaw to discuss your ideas on 93890303. Confirmation of options already received will be posted this month.

Middle Years Maths Teachers' Day

Places still available at Bendigo!

Bendigo – Friday, 11th June
For full program and registration form call the office. Places are limited so fax a booking with your session preferences today.

Bookings now open for Croydon!

Croydon – Friday, 3rd September

Registration

To register please use the enclosed flyer or download the specific PD form(s) from the website or call the office on 03 9380 2399 to request the form to be faxed. For Croydon, we have introduced on-line registrations (go to <http://www.mav.vic.edu.au/pd/pd2004.htm>). If you have difficulties, please use alternative methods to register i.e. fax, email or mail and, most importantly, let us know about any problems you have with the system.

Primary Maths Days

Places still available!

Ballarat – Monday, 7th June
Moorabbin – Monday, 9th August

Registration as above.

After-School PD Options for Secondary Teachers

Check the PD pages inside as well as the website on www.mav.vic.edu.au/pd/pd2004.htm for all the latest details.

Registration

To register use the Professional Development Application form on the back of this newsletter.

From the President

Some findings from the Third International Mathematics and Science Study (TIMSS) 1999 Video Study

The TIMSS 1999 Video Study examined teaching practices through in-depth analysis of videotapes of eighth-grade mathematics and science lessons. In all, 638 random and typical mathematical lessons from Australia, the Czech Republic, Hong Kong SAR, the Netherlands, Switzerland, the United States and Japan were videoed and analysed.

Goals and objectives

The broad goal of the mathematics portion of the TIMSS 1999 Video Study was to describe and investigate teaching practices in eighth-grade mathematics in a variety of countries including several countries with varying cultural traditions and with high mathematics achievement, as assessed through TIMSS 1995.

Report

The Australian report, Teaching Mathematics in Australia, Hollingsworth, H., et al, ACER, 2003 comes with a CD of selected videos of classroom lessons.

Similarities

1. In all of the countries, eighth-grade mathematics was often taught through solving 'problems'; at least 80 percent of lesson time, on average, was devoted to solving mathematics 'problems'.
2. Eighth-grade mathematics lessons in all seven countries were organised to include some public, whole-class work and some private, individual or small-group work. During the time that students worked privately, the most common pattern across the countries was for students to work individually, rather than in pairs or groups.
3. On average, lessons in all of the countries included some review of previous content as well as some attention to new content.

4. At least 90 percent of lessons in all the countries made use of a textbook or worksheet of some kind.
5. Teachers in all of the countries talked more than students, at a ratio of at least 8:1 words, respectively.

Differences

1. *Content.* Eighth-grade mathematics lessons in the Czech Republic placed a greater emphasis on reviewing previously learned content than those in all of the other countries except the United States. Lessons in Japan placed a greater emphasis on introducing new content than those in all six of the other countries; and lessons in Hong Kong SAR placed a greater emphasis on practising new content than those in the Czech Republic, Japan, and Switzerland.
2. *Complexity.* Across the three levels of complexity, with the exception of Japan, most problems were of low procedural complexity. In Japan, 39 percent of problems per lesson were of high procedural complexity, a greater percentage than in any of the other six countries.
3. *Making connections.* Japanese eighth-grade mathematics lessons contained a higher percentage of problems per lesson that were mathematically related (42 percent) than other countries. Moreover, Japanese lessons contained a lower percentage of problems per lesson that were repetitions (40 percent) than those in any of the other countries. In all of the countries except Japan, at least 65 percent of the problems per lesson, on average, were identified as repetitions of the preceding problem.
4. *Type of problems.* Teachers in Hong Kong SAR and Japan presented different types of mathematics problems to their eighth-grade classes than did teachers in the other countries. Lessons in Hong Kong SAR contained a large percentage of problems per lesson targeted toward using procedures (84 percent), while mathematics teachers in Japan presented a large percentage of problems per lesson that emphasised making connections (54 percent).

2004 Professional Development

Full-Day PDs

Cost - \$130 p/person for members, \$165 p/person for non-members, \$115 p/person for schools sending 4 teachers or more (All prices are GST inclusive).

Register - using the specific form refer to page 1 of this issues of the Common Denominator

Date/Time/Venue	Description
Monday 9 August 2004 9am-3.30pm Moorabbin	Primary Maths Day Topics to be covered include: Intervention, Using Games in the Numeracy Block, Place Value Fundamentals, Patterns and Problem Solving, Linking Maths and Literacy and Using Open-Ended Tasks.
Friday 3 September 2004 9am-3.30pm Croydon	Middle Years Maths Day Sessions to be presented include: Engaging Activities for Middle Years Students (Charles Lovitt), Using Manipulatives to Teach Algebra (Andrea Federico), Creating a Thinking Community (Suzanne Gunningham) and Intervention in the Middle Years (Colleen Vale).

After-School PDs – Series - New PDs for Term 3 on CAS and Technology

Cost - \$30 members, \$40 non-members (inc GST). Cost includes afternoon tea.

Register – using the Professional Development application form available on the back page of this issue

Date / Time	Venue	Suburb / Melways No.	Topic
Tue 3 Aug 4.30 – 6.30pm	Penleigh & Essendon Grammar	Keilor McNab House 15 G10	An introduction and overview of CAS Teachers will have the opportunity to use and be guided through some of the capabilities of a CAS calculator (TI-89) as well as a discussion on some of the issues to be considered when engaging with this type of technology. For instance: How might your teaching change? What about by hand skills - how much do they still need to know?
Tue 10 Aug 4.30 – 6.30pm	Wellington Sec College	Mulgrave 80 D4	No CAS calculator experience required.
Mon 23 Aug 4.30 – 6pm	Our Lady of Sion	Box Hill 47 E9	Maths Methods CAS - Year 11 A teacher from one of the schools that has piloted the CAS Maths Methods Units 1 & 2 course will share their thoughts and reflections on how their implementation went, changes they have made, recommendations to consider, as well as share some activities that have been developed.
Wed 28 July 4.30 – 6pm	Taylors Lake Sec College	Taylors Lake 13 J3	
Wed 11 Aug 4.30 – 6pm	Haileybury College	Keysborough Sen. School 88 J9	
Wed 4 Aug 4.30 – 6.30pm	Frankston High School	Frankston 102 E7	Let's Get Connected! Internet - Computer - Graphic Calculator - Applications Knowledge on how to store and retrieve files between your calculator and computer, gathering data sets from the Internet and placing them directly into lists on your calculator and having access to a wide range of free applications, such as Junior Cabri, Conics, Probability Simulations and many more, provides for a stimulating classroom environment where up to date and relevant data can be accessed, used and shared with ease. Teachers should bring their TI-83plus, TI - 89 or Voyage 200.
Mon 16 Aug 4.30 – 6.30pm	Our Lady of Sion	Box Hill 47 E9	

Games Days 2004

Year	School	Date	Contact	Email
6	Genazzano FCJ College - Fully Booked -	Friday 27 August	Phil Tascone	TascoP@gen.melb.catholic.edu.au
7	Scotch College - Fully booked -	Tuesday 31 August	Michele Linossier	Michele.Linossier@scotch.vic.edu.au
7	St Paul's	Tuesday 31 August	Heather Steenholdt	hesteenholdt@stpaulswgl.vic.edu.au
7	Overnewton Anglican Community College	Tuesday 31 August	Liz Treloar	Liz.Treloar@overnewton.vic.edu.au
8	PEGS	Wednesday 21 July	Roger Blackman	Roger.Blackman@pegs.vic.edu.au
* 10	Methodist Ladies' College	Tuesday 27 July	Allason McNamara	mccnamaam@mlc.vic.edu.au
11/12	St Michael's Grammar School	Thursday 24 June	Vahe Sargsyan	vsargsyan@stmichaels.vic.edu.au

* Registration available on-line at <http://www.mav.vic.edu.au/studact/games-days.htm>

Web Review

Australian Year of the Built Environment



2004 has been proclaimed as the Year of the Built Environment in Australia.

The built environment means buildings, places and structures in which we live, work and play. It is about the environment that has been created, modified, constructed, developed, arranged or maintained by humans – that's domestic and public buildings, infrastructure, landscaping and other man-made features of our communities.

<http://www.builtenvironment2004.wa.gov.au/ybe>
Western Australian Government
Year of the Built Environment 2004 - Imagining the Future

<http://www.eddept.wa.edu.au/cmisis/eval/curriculum/pathfinders/ybe/index.htm>

WA Department of Education and Training
Year of the Built Environment 2004 – Curriculum Context

<http://www.pbs.org/wgbh/buildingbig/index.html>

Building Big – bridges, domes, skyscrapers, dams, tunnels
A great set of challenges with supporting links for further information.

<http://www.edna.edu.au/edna/page2399.html>

An extensive list of links to a variety of materials related to the themes for the year.

- Sustainable communities
- Healthy environments
- Excellence in building
- Building regional communities
- Our built heritage
- Imagining the future
- Design for all

Take The Challenge – Money Stuff!

You could be in the running to win a G4 iMac computer and digital video camera for your school by entering the 2004 Money Stuff Challenge competition. For further information visit www.moneystuff.net.au

5. *Ways of working on problems.* In Australian and U.S. eighth-grade mathematics lessons, a smaller percentage of making-connections problems were solved in a way that actually made the connections among mathematical facts, procedures, and concepts evident during classroom discussions than in the other countries (8 percent and 1 percent respectively). The percentages in the other countries ranged from 37 to 52.

6. *Summarising.* Eighth-grade mathematics lessons in Japan and the Czech Republic employed different methods to summarize the point of a lesson or a mathematical problem than those in almost all of the other countries. Lesson summaries were identified in at least 21 percent of eighth-grade mathematics lessons in Japan, the Czech Republic, and Hong Kong SAR, and in 10 percent of lessons in Australia.

7. *Real life applications.* Mathematics problems in eighth-grade lessons in the Netherlands emphasized the relationships between mathematics and real-life situations to a greater extent than those in most of the other countries. (42 percent of problems, on average, per lesson). In Australia, the figure was 27 percent, significantly more than Japan at 9 percent.

8. *Individual, small group and whole class.* Eighth-graders in Australia, the Netherlands, and Switzerland spent a greater percentage of lesson time, on average, working individually or in small groups than eighth-graders in the other four countries. In addition, students in the Netherlands were assigned a larger number of homework problems per lesson (10 problems), than students in all the other countries except Australia. The range in the other countries was from less than 1 to 5 mathematics problems per lesson.

9. *Calculators and computers.* Eighth-grade Dutch students used calculators for computation during 91% of their mathematics lessons. Use of computational calculators in the other countries ranged from 31 to 56 percent of lessons, with too few cases in Japan to report a reliable estimate. Computers were actually used, rather than simply

present, in only 2 to 9 percent of the eighth-grade mathematics lessons across the countries.

In summary

In Teaching Mathematics in Australia, Professor Kaye Stacey concludes:

In summary, whether Australia pursues the reform ideal of having students learn mathematics by deep engagement with rich problems or alternatively seeks to maximise outcomes obtained by emphasising standard sets of mathematical procedures, there needs to be a greater emphasis on explicit mathematical reasoning, deduction, connections and higher-order thinking in lessons. The research evidence indicates that this may increase achievement, but it is also of a-priori importance since these are the thinking processes that characterise mathematics. The video study shows that this can be done with Year 8 students better than is currently done in the average Australian classroom. (page 122)

Recommendations for Australian teachers

1. Set fewer, more challenging problems
2. Highlight the mathematical connections and reasoning involved in their solution more often

It appears also that higher-ability students, at least, would be better served with some more challenging content – in particular, algebra beyond technique practice. (page 104)

Ray Peck, President

Introducing an MAV Councillor



Peter Wyatt

Peter has been teaching for more than 25 years and continues to embrace the passion and drive for investigating mathematics teaching and learning in creative and diverse ways. His greatest discovery was stumbling on the Maths Talent Quest experience eight years ago and he has since relished every opportunity to share this wonderful concept with many of his students and of colleagues. 'Making Maths Meaningful' continues to be Peter's mission. His current professional responsibilities as leading teacher at Kingsley Park Primary include an exuberant group of year 2 mathematicians, coordinating the whole-school Early Years Numeracy Strategy, whole-school Science program and he is Facilitator for the Prep - 2 Department. Peter is looking forward to supporting the MAV and considers it an honour to be working with so many talented people.

TEACHER OFFER

The IMAX Theatre Melbourne would like to offer a free class visit (up to 30 students plus staff) in exchange for a teacher revising some worksheets. The current study guide for the IMAX movie NASCAR 3D requires metrication as well as some CSF details.

For further information regarding the 3D movie please refer to <http://www.imax.com/racing/flash.html>
Should you wish to take up this offer please contact Jane Susak on
T: 03 9663 0200
E: jsusak@imax.com.au

ATSE Clunies Ross Award 2005

Nominations are now invited for the ATSE Clunies Ross Award for 2005, providing an opportunity to celebrate Australia's outstanding scientific achievers.

Since 1991 this Award has recognised and honoured 80 people for their successful application of science and technology for the economic, social or environmental benefit of Australia.

Please note that nominations close on Friday, 30 July 2004.

The winners will be announced and presented with a silver medal at the Award Ceremony Dinner in March 2005 at the Sofitel Melbourne.

A nomination form and criteria are available for downloading on the Clunies Ross website at www.cluniesross.org.au or by contacting the Award Secretary on 03 9347 0622 or email maryb@atse.org.au.



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PROBLEMS OF THE MONTH

Investigations in Mathematics by Lorraine Mottershead

- A.** Insert + and – signs only to make a total of 100 in 1 2 3 4 5 6 7 8 9.
The numbers must stay in this order. (There are at least two solutions)
- B.** Insert + signs only to make a total of 1000 in 8 8 8 8 8 8 8 8

Answers to May Issue “Problems of the Month”

- a.** 1000, 997, 799, 47, 49, 7, 14, 13
b. 1000, 973, 139, 931, 133, 19, 91, 13
c. 1000, 10, 253, 23, 46, 93, 39, 13
d. 1000, 2156, 539, 77, 158,94, 85, 13

Attention: Heads of Department – Ballarat Region	
You are invited to attend a meeting of the Heads of Faculty Network Meeting on 9 June at Ballarat Grammar	
Date & Time:	Wednesday 9 th June (GAT Day) from 10am to 3pm
Venue:	The Pavilion, Gate D Ballarat Grammar School 201 Forest Street, Wendouree 3355
Telephone:	53391191 (switchboard) or 53380 840 (Sue Garner's office)
Cost:	\$50 (GST inclusive) - <i>Lunch, and morning tea will be provided</i> Please make cheques payable to Ballarat Grammar School (ABN 93 005 091 805)
Contact:	Sue Garner, zsmg@bgs.vic.edu.au
Program:	10 am-10.30am Morning tea
	10.30am-11.30am Duelling CAS: Brian Morphet - Mentone Grammar Sue Garner - Ballarat Grammar Allason McNamara – MLC
	11.30am-12.30pm Coherent Technology Curriculum Planning P-10, VCE: Dr Robyn Pierce - University of Ballarat
	12.30pm-1.30pm Lunch
	1.30pm-2.30pm Study Design 2006: view from 4 VCAA Review Panels: Michael Evans - Scotch College
	2.30pm-3pm Administration of SACs: Ann Cleghorn - Kilvington
RSVP:	If you wish to attend and have not responded, please contact Sue Garner (zsmg@bgs.vic.edu.au) at Ballarat Grammar urgently.