CONTENTS PAGES

About this Book:

Sessions are listed in 3 different ways in this book:

1. Session Summary - sessions are listed in chronological order, showing title and presenters.
2. Session Details - sessions are listed in chronological order and include style of presentation, suitable year levels, a short abstract and any additional notes for participants.
3. Presenter Listing - a list of all presenters in alphabetical order by surname and their sessions.

"ConnectEd Maths"

Welcome to the 2008 MAV Annual Conference.

This year's theme, *ConnectEd Maths* once again leaves presenters with plenty of scope to explore not only how Mathematics is connected to other facets of our lives and world but also seeks to address the growing influence technology has in the teaching and learning of Mathematics concepts. The Conference Committee would like to acknowledge all the hard work and preparation that these presenters have put into helping make this conference such a success.

It has been great to see that some of our presenters have made the additional contribution to our conference by writing a paper for inclusion in our Conference Proceedings book. As with last year we would like to encourage all of our presenters to consider publishing the information contained in their presentations in either of our two quarterly journals, Prime Number or Vinculum. For those for whom this would be a new experience, MAV has at hand several people who would be willing to mentor you in getting your article published.

Our Anniversary Lecture this year will be presented by Barry McGaw who will present on the topical National Curriculum.

Once again, our Closing Ceremony promises to be magical with Lynne Kelly ready to wow us with her tricks.

Our Annual Conference would not be so successful if not for the support received from our sponsors. Texas Instruments and Casio are major sponsors of the conference and the MAV and Conference Committee would like to thank them for their commitment. We would also like to thank our minor sponsors this year.

Our Conference Committee, Julie Allen and her team from The Full Pretzel and the team in the MAV office, must also be thanked for all the work they put in throughout the year to ensure that the days run smoothly and participants of the conference have available to them a wide variety of presentations from which to choose.

I hope that you enjoy this year's conference and leave both challenged and excited about how you can use what you have learnt over the few days to enhance the teaching and learning of Mathematics for your students.

Michelle Huggan

Michelle Huggan
Conference Convenor

GENERAL INFORMATION

DATES
Wednesday 3rd - Friday 5th December, 2008

VENUE
La Trobe University
Kingsbury Drive
BUNDOORA
Melways Ref: 19 G8 (Campus Map Page 473)

PARKING
Free parking is available for conference delegates in Carpark P3. Take Kingsbury Drive off Plenty Road. Turn left into Waterdale Road. Go straight through roundabout and veer left into Carpark P3.

WELCOME DINNER
Date: ***Wednesday 3rd December***
6:00pm - 10:00pm
Location: The Eagle Cafe, Union Building

OPENING CEREMONY & ANNIVERSARY LECTURE
Date: ***Thursday 4th December***
9:00am - 10:00am
Presenter: Prof Barry McGaw
- University of Melbourne
Location: Agora Theatre, Agora

CLOSING CEREMONY
Date: ***Friday 5th December***
3:15pm - 4:15pm
Presenters: Lynne Kelly
Location: Agora Theatre, Agora

EXHIBITION
Date: ***Thursday 4th December***
8:00am - 5:30pm
Date: ***Friday 5th December***
8:00am - 2:00pm
Location: Main Hall, Union Building

HAPPY HOUR
Date: ***Thursday 4th December***
4:30pm - 5:30pm
Location: Main Hall, Union Building

CONFERENCE DINNER - TRIVIA & DANCING
Date: ***Thursday 4th December***
6:30pm - 11:00pm
Location: The Eagle Cafe, Union Building

KEYNOTE SPEAKERS:
- ◊ Judy Anderson
- ◊ Kim Beswick
- ◊ Jill Brown
- ◊ Ann Downton
- ◊ Tim Falkiner
- ◊ Sue Ferguson & Leanne Robertson
- ◊ Hanan Harrison
- ◊ Mark Hennessy
- ◊ Konrad Krainer
- ◊ Jean-Marie Laborde
- ◊ Anne Lawrence
- ◊ Irit Peled
- ◊ Thelma Perso
- ◊ Marty Ross & Burkard Polster
- ◊ Dianne Siemon
- ◊ Jamos Somerville-McAlester
- ◊ Gloria Stillman
- ◊ Colleen Vale
- ◊ Jennifer Way

NATIONAL NUMERACY REVIEW - A FORUM:
Peter Sullivan, Elizabeth Burns & Marty Ross

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AAMT STANDARDS

The AAMT Standards relate to the specialised professional work of teaching mathematics and are not intended to describe the characteristics and attributes of excellent teachers in general. The AAMT Council expects that all teachers of mathematics:

◊ have qualifications appropriate to the grade level and/or mathematics they teach;
◊ behave, and carry out their duties in a responsible and ethical manner; and
◊ have a personal philosophy of teaching and learning that is evident in their classroom practice.

The AAMT Council encourages professionally supportive uses of the Standards by individuals, groups, institutions and organisations. The Council does not support their use, in whole or in part, in any performance management systems for teachers.

DOMAIN 1: PROFESSIONAL KNOWLEDGE

Excellent teachers of mathematics have a strong knowledge base to draw on in all aspects of their professional work, including their decision making, planning and interactions. Their knowledge base includes knowledge of students, how mathematics is learned, what affects students' opportunities to learn mathematics and how the learning of mathematics can be enhanced. It also includes sound knowledge and appreciation of mathematics appropriate to the grade level and/or mathematics subjects they teach.

1.1 KNOWLEDGE… of students

Excellent teachers of mathematics have a thorough knowledge of the students they teach. This includes knowledge of students' social and cultural contexts, the mathematics they know and use, their preferred ways of learning, and how confident they feel about learning mathematics.

1.2 KNOWLEDGE… of mathematics

Excellent teachers of mathematics have a sound, coherent knowledge of the mathematics appropriate to the student level they teach, and which is situated in their knowledge and understanding of the broader mathematics curriculum. They understand how mathematics is represented and communicated, and why mathematics is taught. They are confident and competent users of mathematics who understand connections within mathematics, between mathematics and other subject areas, and how mathematics is related to society.

1.3 KNOWLEDGE… of students' learning of mathematics

Excellent teachers of mathematics have rich knowledge of how students learn mathematics. They have an understanding of current theories relevant to the learning of mathematics. They have knowledge of the mathematical development of students including learning sequences, appropriate representations, models and language. They are aware of a range of effective strategies and techniques for: teaching and learning mathematics; promoting enjoyment of learning and positive attitudes to mathematics; utilising information and communication technologies; encouraging and enabling parental involvement; and for being an effective role model for students and the community in the ways they deal with mathematics.

DOMAIN 2: PROFESSIONAL ATTRIBUTES

Excellent teachers of mathematics are committed and enthusiastic professionals who continue to extend their knowledge of both mathematics and student learning. They work creatively and constructively within a range of 'communities' inside and beyond the school and set high, achievable goals for themselves and their students. These teachers exhibit personal approaches characterised by caring and respect for others.

2.1 Personal attributes

The work of excellent teachers of mathematics reflects a range of personal attributes that assists them to engage students in their learning. Their enthusiasm for mathematics and its learning characterises their work. These teachers have a conviction that all students can learn mathematics. They are committed to maximising students' opportunities to learn mathematics and set high achievable standards for the learning of each student. They aim for students to become autonomous and self directed learners who enjoy mathematics. These teachers exhibit care and respect for their students.

2.2 Personal professional development

Excellent teachers of mathematics are committed to the continual improvement of their teaching practice and take opportunities for personal professional development. They undertake sustained, purposeful professional growth in their own knowledge, understanding and skills in mathematics, and in the teaching and learning of mathematics.

The professional development they undertake enables them to develop informed views about relevant current trends (including teaching and learning resources, technologies, and changes to the curriculum with which they work) and to further their teaching expertise. They are involved in professional development processes that include collegial interaction, professional reading and active exploration of new teaching ideas, practices and resources in the classroom. They reflect on practice and the new knowledge they gain, and learn from their experiences.

2.3 Community responsibilities

Excellent teachers of mathematics are active contributors to the range of communities relevant to their professional work. They are positive advocates for mathematics and its learning in the school and the wider community. They ensure effective interaction with families including provision of information about students' learning and progress. They offer strategies for assisting students' mathematical development outside the classroom. They create and take opportunities to involve students in mathematical activities beyond the classroom in contexts of interest and relevance to the students. They contribute to the improvement of mathematics teaching by actively engaging and collaborating with colleagues both individually and in teams – learning; sharing insights, practices and resources; supporting and mentoring others; and providing feedback. They actively participate in school decision-making.

DOMAIN 3: PROFESSIONAL PRACTICE

Excellent teachers of mathematics are purposeful in making a positive difference to the learning outcomes, both cognitive and affective, of the students they teach. They are sensitive and responsive to all aspects of the context in which they teach. This is reflected in the learning environments they establish, the lessons they plan, their uses of technologies and other resources, their teaching practices, and the ways in which they assess and report on student learning.

3.1 The learning environment

Excellent teachers of mathematics establish an environment that maximises students' learning opportunities. The psychological, emotional and physical needs of students are addressed and the teacher is aware of, and responds to, the diversity of students' individual needs and talents. Students are empowered to become independent learners. They are motivated to improve their understanding of mathematics and develop enthusiasm for, enjoyment of, and interest in mathematics. In an inclusive and caring atmosphere of trust and belonging, active engagement with mathematics is valued, communication skills fostered, and co-operative and collaborative efforts encouraged.

3.2 Planning for learning

Excellent teachers of mathematics plan for coherently organised learning experiences that have the flexibility to allow for spontaneous, self-directed learning. These learning experiences involve substantive mathematics. They enable students to develop new mathematical understandings that build on and enrich their knowledge and appreciation of mathematics. A variety of appropriate teaching strategies is incorporated in the intended learning experiences, enhanced by available technologies and other resources. Students' backgrounds and prior mathematical knowledge are taken into account. Students are provided with opportunities to explore and apply mathematics across key learning areas and beyond the school setting.

3.3 Teaching in action

Excellent teachers of mathematics arouse curiosity, challenge students' thinking, and engage them actively in learning. They initiate purposeful mathematical dialogue with and among students. As facilitators of learning, excellent teachers negotiate mathematical meaning and model mathematical thinking and reasoning. Their teaching promotes, expects and supports creative thinking, mathematical risk-taking in finding and explaining solutions, and involves strategic intervention and provision of appropriate assistance.

3.4 Assessment

Excellent teachers of mathematics regularly assess and report student learning outcomes, both cognitive and affective, with respect to skills, content, processes, and attitudes. They use a range of assessment strategies that are fair, inclusive and appropriate to both the students and the learning context. They maintain on-going, informative records of student learning outcomes that are used to map student progress and to plan appropriate future learning experiences. The excellent teacher of mathematics provides constructive, purposeful and timely feedback to students and their parents, and to school authorities, as required.

AGENDA

Wednesday 3rd December

6:00pm - 10:00pm	Welcome Dinner	The Eagle Cafe

Thursday 4th December

8:00am	Registration Opens	The Odeon
8:00am	Exhibition Opens	Union Hall
9:00am - 10:00am	Opening Ceremony & Anniversary Lecture	Agora Theatre
10:00am - 10:45am	Morning Tea	
10:45am - 11:45am	Session A	
12:00pm - 1:00pm	Session B	
1:00pm - 2:00pm	Lunch	
2:00pm - 3:00pm	Session C	
3:15pm - 4:15pm	Session D	
4:30pm - 5:30pm	Happy Hour	Union Hall
5:30pm	Registration & Exhibition Closes	
6:30pm - 11:00pm	Conference Dinner	The Eagle Cafe

Friday 5th December

8:00am	Registration Opens	The Odeon
8:00am	Exhibition Opens	Union Hall
9:00am - 10:00am	Session E	
10:00am - 10:45am	Morning Tea	
10:45am - 11:45am	Session F	
12:00pm - 1:00pm	Session G	
1:00pm - 2:00pm	Lunch	
2:00pm - 3:00pm	Session H	
2:00pm	Registration & Exhibition Closes	
3:15pm - 4:15pm	Closing Ceremony	Agora Theatre

SOCIAL PROGRAM:

Welcome Dinner - Wednesday 3rd December

On Wednesday 5th December the MAV will be hosting a special “Welcome Dinner”. Ideal for anyone staying overnight, this is a great opportunity to network with other regional, interstate and overseas delegates. Price includes a gourmet BBQ with 2 hour beverage package and will be held at The Eagle Cafe, located in the Union Building on the La Trobe Campus.

Happy Hour - Thursday 4th December

An old conference favourite, Happy Hour will be held within the exhibition area of the Union Building.

Conference Dinner - Thursday 4th December

A casual dinner on the Thursday evening. Come along, try your hand at some trivia, drink, eat, network and dance!

REGISTRATION INFORMATION

Registration Fees:

1. Session Registration	1 Day	2 Days
Member Metro	$178	$247
Member Non-Metro	$172	$234
Non-Member	$232	$341
Student	$98	$156

2. Welcome Dinner (Wednesday 3rd December)	$ 47.00
3. Conference Dinner (Thursday 4th December)	$ 70.00
4. Breakfast (per person, per day)	$ 14.00
5. Happy Hour (Thursday 4th December)	FOC
6. Lunch (1 per person, per day registered)	FOC

All prices are inclusive of 10% GST.

How to Register:

1. Read this book, select the presentations you wish to go to in each session.
2. Get a school purchase order OR credit card number from your Bursar or Accounts person.
3. Go online to www.mav.vic.edu.au/conference/registration and follow the links to register.
4. Put your email address into the "Username" (this address should be the one you use most as a teacher, eg. surname.first.initial@edumail.vic.gov.au).
5. a) If you are already in our system your file will automatically be available. Go to the "My Account" tab and update your details, especially your dietary requirements.
   b) If you are not in our system register as a "New User". *NOTE: You will only be able to register for the conference as a Non-Member or Student.*
   c) If you think you are a member check with our office by calling 03 9380 2399.
6. Go through the steps to register your sessions, social program, food, accommodation, etc.
7. Press submit to complete your registration.
8. Print out a copy of your confirmation for your records.

Note: You may log in at any time using the same Username to change your sessions or re-print your confirmation.

If you cannot log in call the MAV on 03 9380 2399 or email jallen@mav.vic.edu.au

Inclusions:

The Registration Fee includes (per person):

- ◊ Morning Tea for each day registered
- ◊ 1 Lunch voucher for each day registered
- ◊ Attendance at selected sessions
- ◊ Happy Hour on Thursday 4th December
- ◊ Access to industry exhibition

Notes:

- ◊ Registrations will NOT be processed without full payment or a school purchase order number.
- ◊ Session numbers are limited and the website will indicate when sessions are full.
- ◊ Member rates apply to individual members, institutional/school members, Australian Mathematics Associations who are members of AAMT and New Zealand Mathematics educators who are members of the NZAMT.

APPLICATIONS CLOSE MONDAY 10TH NOVEMBER 2008 AT 5:00PM

Cancellation Policy:

Participants who cancel their booking on or prior to Monday 10th November 2008 will receive a full refund less a $25 administration fee. All cancellations MUST be in writing and include any documentation already sent out. NO REFUNDS are available after the 10th November 2008. Registration may be transferred to another person.

FOOD & BEVERAGES

Welcome Dinner - Wednesday 3rd December

The Welcome Dinner is a perfect opportunity to network with colleagues in a relaxed environment before the conference starts. *This is additional to the registration fee.*

Breakfast - Thursday 4th & Friday 5th December

Get on campus early, register, relax and get ready for the day's events. A great way to kick-start the day! On Thursday 4th and Friday 5th December, MAV delegates may purchase a hot breakfast from The Glenn Dining Hall, located on campus in Glenn College. *This is additional to the registration fee.*

Morning Tea - Thursday 4th & Friday 5th December

Morning tea is included in the registration fee and will be provided to all delegates at selected locations around the campus on both days.

Lunch - Thursday 4th & Friday 5th December

A number of food outlets at La Trobe University will be serving lunch to conference delegates. You will receive a lunch voucher with confirmation of your registration. This will entitle you to a "MAV Conference Package Lunch" at the following campus outlets:

- ◊ Ping's Café Moat
- ◊ Eale Café
- ◊ Campus Café
- ◊ Life Skills Café
- ◊ Café Spice
- ◊ Charlie's Kebab House
- ◊ Café Veloci
- ◊ Bakery
- ◊ Caffeine
- ◊ Fusion
- ◊ Café Xpresso

When filling in your registration form online you MUST select which outlet you want to get lunch from for each day you are attending.

Union Building

1. Ping's Café Moat

Thursday 4th

Hot Lunch Box: Lemon Chicken ***OR*** Mixed Stir Fry Veg and Tofu ***WITH*** Steamed Rice, Bottle of Drink

Cold Lunch Box: Roast Chicken ***OR*** Salad Roll, Vegetarian Sushi, Bottle of drink

Friday 5th

Hot Lunch Box: Rainbow Steak ***OR*** Mixed Stir Fry Veg and Tofu ***WITH*** Steamed Rice, Bottle of Drink

Cold Lunch Box: Terriyaki Chicken ***OR*** Salad Roll, Vegetarian Sushi, Bottle of Drink

2. Eagle Café

Focaccia (meat or vego) and Chips ***OR*** Beef Lasagna and Chips ***OR*** Vegetarian Lasagna and Chips

Agora

3. Campus Café

Focaccia (3 varieties) ***OR*** Chicken Schnitzel Roll ***OR*** Fish Fillet and Chips ***OR*** Special Fried Rice ***OR*** Singapore Noodles ***OR*** Sushi Hand Rolls x 2 ***WITH*** Piece of Fruit, Can of Soft Drink or Water

4. Life Skills Café

Variety of Wraps ***OR*** Vegetarian Quiche ***WITH*** Drink

5. **Café Spice**
   ANY Medium Curry (7 varieties) ***WITH*** Steamed Rice, Drink

6. **Charlie's Kebab House**
   Grilled Chicken and Salad Wrap ***OR*** Chicken Schnitzel with Lettuce, Mayo and Cheese in a Roll ***OR*** Grilled Chicken with Salad in Turkish Bread ***OR*** Vegetarian Falafal Pocket (Turkish Bread) ***WITH*** Piece of Fruit, Small Juice or Water

7. **Café Veloci**
   Chicken Fillet Focaccia ***OR*** Vegetarian Wrap ***OR*** 2 Pizza Slices ***OR*** Large Pasta ***WITH*** Peace of Fresh Fruit, Ice Cold Drink, Pink Ribbon Chocolate

8. **Bakery**
   Homemade Pie ***WITH*** Sweet (Danish, etc), Can of Drink

9. **Caffeine**
   3 Sushi Hand Rolls ***OR*** Chicken, Meat, or Vegetarian Roll ***WITH*** Water or Can of Soft Drink

10. **Fusion**
    Quarter Chicken and Chips with Small Coleslaw ***OR*** Quarter Chicken and Chips ***WITH*** Regular Drink

11. **Café Xpresso**
    Any foccaccia ***WITH*** Drink

Happy Hour - Thursday 4th December

Happy Hour is free of charge and open to all registered delegates and exhibitors. Please indicate whether you will be attending this event when registering online.

Conference Dinner - Thursday 4th December

The Trivia Night (Conference Dinner) will be held on Thursday 4th December. This evening will be an interactive, relaxed, fun evening. *This is additional to the registration fee.*

ACCOMMODATION

Option 1

Glenn College Student Accommodation (100 available)

Located in the heart of the Bundoora campus, you simply step out of your door and into the middle of the MAV Conference. Each room has a single bed and study desk. Every four rooms share one bathroom facility with separate toilets. This price includes a hot breakfast.

Single Room $ 59.00 Per Person/Per Night

Option 2

Rydges Hotel, Preston

Located a short 10 minute drive from La Trobe University, this is a 4 star hotel. A shuttle bus will operate between Rydges and La Trobe University on the Thursday and Friday of the conference.

A. Twin Studio (14 available)

Compact yet comfortable, these rooms consist of 2 single beds, tea & coffee making facilities and self controlled air conditioning.

Twin Studio $ 104.00 Per Room/Per Night

B. Sleep & Go Twin (41 available)

Featuring floor to ceiling glass, these rooms consist of 2 single beds and offer a work station with high speed internet, Foxtel, tea & coffee making facilities, en-suite and self controlled air conditioning.

Sleep & Go Twin $ 119.00 Per Room/Per Night

C. Sleep & Go Queen (17 available)

Featuring floor to ceiling glass, these rooms consist of 1 queen bed and offer work station with high speed internet, Foxtel, tea & coffee making facilities, en-suite and self controlled air conditioning.

Sleep & Go Queen $ 119.00 Per Room/Per Night

D. 1 Bed Manhattan Room (5 available)

Simply stunning 1 Bed Manhattan offers 1 queen Rydges dream bed, self contained kitchenette including stove top, microwave, fridge, lounge & dining. All rooms feature work station, high speed internet, Foxtel, self controlled reverse cycle air conditioning / heating, minibar, LCD TV & in room safe.

1 Bed Manhattan Room $ 189.00 Per Room/Per Night

E. 2 Bed Manhattan Room (subject to availability)

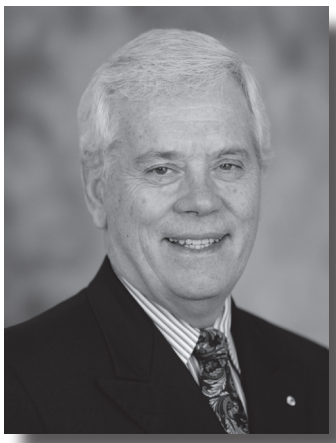
Simply stunning 2 Bed Manhattan offers 2 queen Rydges Dream beds, self contained kitchenette including stove top, microwave, fridge, lounge & dining. All rooms feature work station, high speed internet, Foxtel, self controlled reverse cycle air conditioning / heating, minibar, LCD TV & in room safe.

2 Bed Manhattan Room $239.00 Per Room/Per Night

Other accommodation options are available and can be quoted on request.

ANNIVERSARY LECTURE

Thursday 4th December - 9:00am - 10:00am, Agora Theatre



Prof Barry McGaw - University of Melbourne & Consultant

A National Curriculum in Mathematics

Mathematics is one of the four learning areas for which the National Curriculum Board is charged to develop a national curriculum for K-12 by 2011. The Board's first step towards a national curriculum will be to publish for discussion and advice a draft position paper on the substantive approach it will take to curriculum development and on the strategies it will use. It will follow this with framing papers for English, Mathematics, the Sciences, and History that set out the nature of knowledge, what counts as evidence in evaluating knowledge and the broad scope and sequence of learning that would be appropriate over the K-12 years. These will include the timing and extent of differentiation in the provision of different subjects to cater for differences in students' interests and capabilities. These drafting papers will be published for comment and advice and will also be the focus for discussion in national learning areas forums to be convened in October - November 2008. This presentation will report on the current state of development of national curriculum in mathematics.

Professor Barry McGaw AO, PhD *is half-time Director of the Melbourne Education Research Institute at the University of Melbourne and a consultant. Prior to returning to Australia at the end of 2005, he was Director for Education at the Organisation for Economic Co-operation and Development (OECD). He had earlier been Executive Director of the Australian Council for Educational Research (ACER), Professor of Education at Murdoch University, Head of the Research and Curriculum Branch in the Queensland Department of Education and, originally, a science teacher in Queensland secondary schools. He holds BSc, DipEd and BEd(Hons) degrees from the University of Queensland and EdM and PhD from the University of Illinois. Professor McGaw is a Fellow of the Academy of the Social Sciences in Australia, the Australian Psychological Society, the Australian College of Educators and the International Academy of Education. He has been President of the Australian Association for Research in Education, the Australian Psychological Society, the Australian College of Educators and the International Association for Educational Assessment. He received an Australian Centenary Medal in 2003 and was appointed an Officer in the Order of Australia in 2004. He was the 2005–2006 recipient of University of Illinois Alumni Award for Exceptional Achievement.*

CLOSING CEREMONY

Friday 5th December - 3:15pm - 4:15pm, Agora Theatre

Mathematics is magical! The magic tricks you will be shown will baffle and intrigue your students. Use them to enhance verbalisation of mathematical thinking, to analyse the mathematics or to just have great fun. You will be sent home from the conference with some really new teaching tricks up your sleeve!

Lynne Kelly *- With qualifications in Engineering, Computing and a Masters in Education, Lynne Kelly has spent thirty years in the classroom with students from primary age to VCE. Much of that time has been spent developing enrichment material with high ability students, especially in mathematics and science. She is the author of 10 books for education, two popular science titles, one novel, a set of 50 online enrichment units, and is currently working on her PhD in the English Department at La Trobe University as a science writer. Lynne is a member of the Australian Society of Magicians and uses magic routines in many aspects of teaching and in public speaking.*

NEW SESSION!!

This year the MAV is presenting a special session on the National Numeracy Review. This is listed as a keynote in Session E.

EK2 - National Numeracy Review: A Forum

In May this year the Council of Australian Governments released the National Numeracy Review Report. The Report is a "stocktake of research-based evidence about good practice in numeracy and the learning of mathematics". It makes a number of strong conclusions about – and consequent recommendations for – the teaching of mathematics. This forum wil consider the content and recommendations of this important review. The invited speakers will be given time to express their views, but there will also be ample opportunity for others to speak. The intention is to promote discussion, and to collectively reflect upon the implications of the Review.

SESSION SUMMARY

SESSION A: 10:45am - 11:45am Thursday 4th December

AK1 Making Connections: The 'Really Big' Ideas in Number P to 8 - *Dianne Siemon*
AK2 Students Making the Connections Between Algebra and Word Problems - *Anne Lawrence*
A3 Planning Practical Activities CONNECTED to Teaching Approaches - *Donna Ludvigsen, Naomi Sordello*
A4 THIS WORKS FOR ME! Activities from Prime Number - *Sue Gunningham*
A5 Taking Tangrams Further - *Allan Turton*
A6 Fractions Versus VELS: Making Sense and Teaching Richly - *John Gough*
A7 Pre-service Mathematics Education: Expectations of Expert and Novice - What Connections are Made? - *Judith Falle, Naomi Pask*
A8 Improving Student Engagement and Results Through e-learning - *Julie Thompson, Brendan Colley, Claire O'Connor*
A9 Intervention, Extension, Revision and Assessment - Kinetic Education - *Mary Sanghvi*
A10 Language and Maths - Some Issues and Activities - *Dave Tout*
A11 Strategies to Promote Algebraic Thinking in the Primary Years - *Calvin Irons*
A12 Hands-on Fractions - *Peggy Ashton, Jenny Vincent*
A13 From Games To Investigations - *Douglas Williams*
A14 Helping You to Change Your Teaching From Reactive to Proactive - *Alexander Young*
A15 Building Mental Strategies - *Pauline Rogers*
A16 Working Mathematically in VELS - *Ian Lowe*
A17 The In and Outs of Mathematics Problems - *Nick Connolly*
A18 Engaging Students in the Bronx Using Mathomat Template - *Steve Lewis, Christine Scafidi*
A19 Keeping The Interest, Momentum & Challenge High in Numeracy and Algebra at Years 4-8 - *Tracey Snape*
A20 Teaching While You Are Sleeping: Providing 24/7 Learning Support - *Alan Thwaites*
A21 'Shake Rattle and Roll' Out the Maths with Box Car Games - *Fiona Affleck, Miranda Milaszewicz*
A22 Engaging Mathematics Classes For Middle Years Students - *Donna Krenn*
A23 Using a Measurement Model to Develop Understanding About Fractions - *Max Stephens, Catherine Pearn*
A24 Lesson Study: An Effective Teacher Professional Learning Model - *Peter Sanders, Lyn Forsyth*
A25 Sundials and Other Solar Instruments - *Trish Christies, Tim Byrne*
A26 Enhancing Mathematics Teaching Using Interactive Whiteboards - *Lauren O'Grady*
A27 Writing and Implementing a New Mathematics Curriculum for the Cook Islands - *Alison Fagan*
A28 Mathematics Fractions and Decimals Interview - A Powerful Assessment Tool on the Web - *Helen Gist, Clyde Juriansz*
A29 Experience Using CensusAtSchool Data - *Ian Wong*
A30 Kids Teaching Kids: Student-Created Screencasts and Mathtrain.com - *Eric Marcos, Tony Richards*
A31 Improving Numeracy Through Differentiating the Maths Curriculum - *Nikki Boyce, Kerryn Sandford, Joanne Ganis*
A32 A Multimodal Approach to Middle Years Mathematics: Bridging the Seven Year Difference - *Tom Robinson, Chris Millard, John Davidson, Rachel Dean*
A33 Using Mathematica Demonstrations Project Resources in Middle School - *Peter Hartley*
A34 Integrating Working Mathematically into the Curriculum with the Maths Task Centre Project - *Damian Howison, Chris MacDonald*
A35 Technology Enhanced Mathematics - *Marcel Van Otterdyk*
A36 Whole Class Activities for Years 7-10 - *Theresa Pagon*
A37 Bungee Jumping and The Leaning Tower of Poser - *Denis Day, Subra Muniandy*

A38 Non-Routine Mathematics Problem-Solving Using Algebra - *Karim Noura*
A39 I Didn't Know You Could Do That: Dynamic Algebra on the TI-Nspire - *Stephen Arnold*
A40 Opportunities For Proof - *Paul Brown*
A41 Computer Marked Assessment - Emerging Issues - *Tony Allan*
A42 Preparing To Land On Mars - NASA Spaceward Bound Expedition 2008 - *John Mitsinikos*
A43 TI-Nspire Calculator for the Lower Secondary - *Lisa Sinibaldi*
A44 Working Mathematically: Exciting New Classroom Resources for Teachers - *Lloyd Dawe, Monique Miotto*
A45 Moulding a Novice CAS User Into an Expert - *Kevin McMenamin*
A46 GeoGebra - *Brendan Owen*
A47 So What Do Engineers Do? (Connecting Mathematics to Engineering) - *Debra Leong*
A48 Linking Linear Functions and Measurement: Investigating Using CAS - *Roger Wander*
A49 Univariate and Bivariate Statistics Calculations Using the TI-89 (CAS Calculator) - *Stuart Payne, Suzanne Janssen*
A50 Exploring the Potential of the TI-Nspire in Statistics - *Peter Jones*
A51 Mathematics and The Theory of Knowledge (IB course) - *Rosetta Batsakis*
A52 Specialist Mathematics 2008 and Beyond - *Allason McNamara, Philip Swedosh*
A53 Algebraic and Geometric Approaches To Finding {z : arg(z - z^1) + arg(z - z^2) = theta} - *John Kermond*

SESSION B: 12:00pm - 1:00pm Thursday 4th December

BK1 Integrating Technology Through a Play Based Focus For Early Learners - *Hanan Harrison*
BK2 Structuring Mathematical Thinking in the Primary Years - *Jill Brown*
BK3 Connected Mathematics Through Mathematical Modelling and Applications - *Gloria Stillman*
B4 Mathematics Intervention in the Early Years - *Catherine Pearn*
B5 Planning Practical Activities CONNECTED to Teaching Approaches - *Donna Ludvigsen, Naomi Sordello*
B6 Focussed Games to Assist in Teaching the Four Processes - *Sue Fine*
B7 It's Cool To Calculate - *Peter Maher*
B8 THIS WORKS FOR ME! Activities from Prime Number - *Sue Gunningham*
B9 Flare Interactive Teaching Tools - *Allan Turton, Gerard Tuffield*
B10 Crafting Learning Activities for Individual Students or a Whole Class - *Tony Collison*
B11 Multiplication, Meaning & Times Tables - *Douglas Williams*
B12 Pre-service Mathematics Education: Expectations of Expert and Novice - What Connections are Made? - *Judith Falle, Naomi Pask*
B13 Intervention, Extension, Revision and Assessment - Kinetic Education - *Mary Sanghvi*
B14 Making the Connection: Helping Struggling Students Achieve - *Anita Chin*
B15 Te Poutama Tau - The Numeracy Project for Māori - *Elaine Dyason, Ros Bartosh*
B16 Hands-on Fractions - *Peggy Ashton, Jenny Vincent*
B17 24 Challenge - Activate Your Whole School Community in the Mastery of Maths - *Amanda Cousins, Helen Toon*
B18 The In and Outs of Mathematics Problems - *Nick Connolly*
B19 Teaching While You Are Sleeping: Providing 24/7 Learning Support - *Alan Thwaites*
B20 Understanding Spatial Data - Mathematics & Geography Combine - *Pat Beeson*
B21 'Shake Rattle and Roll' Out the Maths with Box Car Games - *Fiona Affleck, Miranda Milaszewicz*
B22 Fractions of Pattern Blocks - *Leonie Anstey*
B23 Comparing the Effectiveness of Implicit and Explicit Teaching of Values in Mathematics Education - *Penelope Kalogeropoulos*
B24 Mathematical Investigations Using Robots - *Sue Inness*
B25 Interactive Whiteboards in the Mathematics Classroom - *Lauren O'Grady*
B26 A Mean Approach Can Be a Problem: Looking for Variation in Data - *Max Stephens*
B27 Improving Numeracy Through Differentiating the Maths Curriculum - *Nikki Boyce, Kerryn Sandford, Joanne Ganis*
B28 Maths Peer Tutoring Program at Ivanhoe Girls' Grammar School - *Angela Kotsiras*
B29 Bungee Jumping and The Leaning Tower of Poser - *Denis Day, Subra Muniandy*
B30 Using the Promethean Interactive Whiteboard in the Secondary Maths Classroom - *Helen Burns, Jennifer Leishman*
B31 Applications: Using Learned Concepts in Non-Routine Contexts - *Mark O'Brien*
B32 3-2-1 Ignition - *Jo Bradley, Paul Nugent*
B33 Vodcasting Mathematics - *David Phillips, Lynnette George*
B34 Maths in Sport - *Ian Lowe*
B35 Introduction to TI-Nspire CAS - *Rodney Anderson*
B36 Geogebra - Exploring Geometry - *Theresa Pagon, Cameron Hallowell*
B37 Creating an e-activity Using the Casio ClassPad - *Kevin McMenamin*
B38 Arithmetika and Cheetah in Action - *Tony Allan*
B39 Sailing into Trigonometry - *Anthony Harradine*

B40 Working Mathematically: Exciting New Classroom Resources for Teachers - *Lloyd Dawe, Monique Miotto*
B41 The Use of the Casio ClassPad 300 at Year 10 - *Mark Nesbitt, Greg Barras*
B42 Dynamic Geometry with Geometers Sketchpad Version 4 - *Bozenna Graham*
B43 Investigating "What If" Questions: Teaching Mathematics with Dynamic Interactive Documents - *Alper Ciftci*
B44 Introducing the ClassPad to Students on a Pathway to Maths Methods CAS - *Cathy Devlyn, Len Hannah*
B45 *n*spire CAS Software - A Gem of a Program - *Neale Woods*
B46 Univariate and Bivariate Statistics Calculations Using the TI-89 (CAS Calculator) - *Stuart Payne, Suzanne Janssen*
B47 Maths Methods (CAS) - Additional Content in the CAS Course - *Frank Moya*
B48 Teaching Calculus in an Integrated Way! - *Russell Brown*
B49 Mathematical Methods CAS Examination 2 - *Allason McNamara*
B50 How Much Further? - *Andrew Stewart*
B51 VCE Mathematical Methods, Examination 2 - *Bruce Henry, Mary Papp*
B52 Unification of Domains in Probability Distribution Chart - *Mohammed Mall*

SESSION C: 2:00pm - 3:00pm Thursday 4th December

CK1 Chance Connections - *Jennifer Way*
CK2 Digital Content: Connecting Kids (Secondary) - *Sue Ferguson, Leanne Robertson*
C3 Mathematics Intervention in the Early Years - *Catherine Pearn*
C4 'Shuffle and Roll' Maths Games with Box Cars - *Fiona Affleck, Miranda Milaszewicz*
C5 Computation Games and Problem Solving Activities - *Greg Butler, Fiona Van Heuman*
C6 Maths on the Big Screen - Interactive Whiteboards Enhancing the Numeracy Session - *Adria Quinn*
C7 Nine & Over: Adventures in Place Value - *Douglas Williams*
C8 Structure: The Importance of Incorporating this Dimension Into Your Daily Program - *Fotini Godeassi, Rebecca Clark, Fiona Cavigan*
C9 Implementing a Successful School Wide Working Mathematically Approach in a Primary School - *Jennifer Bowden*
C10 Maths Talent Quest - Working Mathematically - *Robyn Crockett, June Penney*
C11 Improving Student Engagement and Results Through e-learning - *Julie Thompson, Brendan Colley, Claire O'Connor*
C12 From Built or Captured Images to Interactive Whiteboard Mathematics - *Michael Quinn*
C13 Children Making Mathematical Connections Through Solving Their Own Problems - *Chris Hurst*
C14 Mental Computation and Number (Teaching Effectively Using Games and Activities) - *Linda Baron, Mary Burns*
C15 Problem Solving Tasks and Activities for Primary School Children - *Diane Foley*
C16 24 Challenge - Activate Your Whole School Community in the Mastery of Maths - *Amanda Cousins, Helen Toon*
C17 Maths on a Mat, and How You Might Amplify Mathematical Ideas with ICT - *Matt Skoss, Tony Richards*
C18 Integration of ICT with Middle Years Maths - *Lyndon Regan*
C19 New Interactive Resources for Grades 5 & 6 - *Paul Negri, Alan Brookes*
C20 The Mathematics of Healthy Eating - *Rhonda Lyons*
C21 Using Diagrams In Problem Solving: Understand The Problem, Simplify The Solution - *George Booker*
C22 Fractions of Pattern Blocks - *Leonie Anstey*
C23 'Higher, Faster, Stronger' Inquiry-based Cluster Maths Project Using the Olympics - *Miranda Price, Nancy Prince*
C24 Murder and Mayhem - Mathematical Investigations Using Medieval Siege Engines - *Sue Inness*
C25 Worksheets (Spreadsheets) to Use Tomorrow - *Ken Walker, John Howes, Casey McGarigle*
C26 Mathematical Problem Solving - A New Paradigm - *Tin Lam Toh*
C27 Hands-on Ratio and Proportion - *Ian Lowe*
C28 CensusAtSchool - A Great Resource for Statistics or Problem Solving - *Ian Wong*
C29 Fractions: What's Worth Learning? - *Robert Money*
C30 The Pluses and Minuses of Teaching Integers - *Trevor Saunders, Anna Satherley*
C31 Exploring Algebraic Thinking - *Deborah Gibbs*
C32 Patterns in Mathematics - *David Perry*
C33 Air Rockets - *Denis Day, Subra Muniandy*
C34 Thinking About CAS and VELS - *Peter Fox*
C35 Critical Thinking in the 7-10 Mathematics Classroom - *Rosetta Batsakis*
C36 Camtasia Fantasia - *Neale Woods*
C37 A Beginners Guide to Programming on the TI-Nspire CAS - *Stephen Arnold*
C38 Mathematics in Te Reo Māori - Who Needs English? - *Brian Tweed*
C39 How Should We Teach About the Mathematics of Gambling? A Discussion - *Donald Smith*
C40 The New Zealand Secondary Numeracy Project: What Have we Learned? - *Jim Hogan*

C41 Investigating Mathematically - *Jeff Trevaskis, Warren Snow*
C42 The TI-Nspire in Years 9 & 10 - *Glenda Gerrard, Judy Taylor*
C43 Be N-spired - *Neville Windsor*
C44 The Casio ClassPad CAS Calculator for Beginners - *Shirly Griffith, Greg Barras*
C45 Linking Linear Functions and Measurement: Investigating Using CAS - *Roger Wander*
C46 Two Terrific Technologies - *Geoff Phillips*
C47 Why Do We Only Look at Half the Cubics? - *Roderick McLean*
C48 Using the Casio ClassPad CAS in Year 11 & 12 Application Tasks - *Gael McLeod*
C49 Writing a Math Methods 3 & 4 Application Task - *Trevor Carter*
C50 Moving to the TI-Nspire CAS for General Mathematics & Further Mathematics Teachers - *Russell Brown*

SESSION D: 3:15pm - 4:15pm Thursday 4th December

DK1 Digital Learning + Mathematics = Innovative Engagement: Connecting Mathematical Thinking with Rich Assessment - *Mark Hennessy*
DK2 Conundrums, Catapults, Custard Pies and Maths Teachers - *Jamos Somerville-McAlester*
DK3 Pokie Jokie - *Tim Falkiner*
D4 'Shuffle and Roll' Maths Games with Box Cars - *Fiona Affleck, Miranda Milaszewicz*
D5 Computation Games and Problem Solving Activities - *Greg Butler, Fiona Van Heuman*
D6 The How To and Where to With ICT and an IWB in EYN! - *Helen Baldock, Tania Hunt, Lisa Conibeer*
D7 Maths on the Big Screen - Interactive Whiteboards Enhancing the Numeracy Session - *Adria Quinn*
D8 Implementing a Successful School Wide Working Mathematically Approach in a Primary School - *Jennifer Bowden*
D9 It's Cool To Calculate - *Peter Maher*
D10 Maximising Success for Children Using Rotational Activities - *Kim Kirkpatrick, Sherilyn Butler*
D11 Addition and Subtraction Number Fact Strategies - Foundation for Mental Computation - *Rosemary Irons*
D12 Enhancing Mathematical Thinking and Teaching with Inspiration - *Michael Quinn*
D13 Te Poutama Tau - The Numeracy Project for Māori - *Elaine Dyason, Ros Bartosh*
D14 Mental Computation and Number (Teaching Effectively Using Games and Activities) - *Linda Baron, Mary Burns*
D15 Problem Solving Tasks and Activities for Primary School Children - *Diane Foley*
D16 Provoking Mathematical Conversations, and How You Might Amplify Mathematical Ideas with ICT - *Matt Skoss, Tony Richards*
D17 Engaging Mathematics Classes For Middle Years Students - *Donna Krenn*
D18 Sensible Mathematics Teaching and Sensible Mathematics Learning - *Len Sparrow, Paul Swan*
D19 Using a Measurement Model to Develop Understanding About Fractions - *Max Stephens, Catherine Pearn*
D20 Enhancing Mathematics Teaching Using Interactive Whiteboards - *Lauren O'Grady*
D21 Worksheets (Spreadsheets) to Use Tomorrow - *Ken Walker, John Howes, Casey McGarigle*
D22 Make A Moke - *Douglas Williams*
D23 Hands-on Ratio and Proportion - *Ian Lowe*
D24 Why Teach Maths with the Brain in Mind? - *Michael Richards*
D25 The Pluses and Minuses of Teaching Integers - *Trevor Saunders, Anna Satherley*
D26 Exploring Algebraic Thinking - *Deborah Gibbs*
D27 Cholesterol, Genital Herpes and Mars Bars - *Anthony Harradine*
D28 Using PEEL to Enhance Mathematics Learning in the Middle School - *Rosemary Dusting*
D29 Classroom Organising, Topic Planning and Student Tracking AND Reducing Teacher Workload - *Bill Murray, Lauren James*
D30 Patterns in Mathematics - *David Perry*
D31 Air Rockets - *Denis Day, Subra Muniandy*
D32 Fibonacci and Fractions - *Diane Itter*
D33 Interactive Maths Series Software Training (Computer Workshop) - *Paul Rehill*
D34 Cooperative Learning in the Maths Classroom - *Mark O'Brien*
D35 A Beginners Guide to Programming on the TI-Nspire CAS - *Stephen Arnold*
D36 Investigating Mathematically - *Jeff Trevaskis, Warren Snow*
D37 Project Based Learning in the 21st Century - *Lyn McGoldrick, Joanne Roughan*
D38 Anyone for Geometry? - *Robert Money*
D39 The TI-Nspire in Years 9 & 10 - *Glenda Gerrard, Judy Taylor*
D40 Activities to Get Started on the TI-Nspire CAS - *David Greenwood, Sylvia Michaels*
D41 Be N-spired - *Neville Windsor*
D42 Investigating "What If" Questions: Teaching Mathematics with Dynamic Interactive Documents - *Alper Ciftci*
D43 Exploring Functional Relations Using Computer Algebra - *David Leigh-Lancaster*
D44 Two Terrific Technologies - *Geoff Phillips*

D45 Introducing the ClassPad to Students on a Pathway to Further Mathematics - *Maria Schaffner, June Warren*
D46 *n*spire CAS Calculators in Distance Education - *Neale Woods*
D47 Discovery Based Learning Using New Symbolic Geometry Software - *Phil Todd*
D48 Using Resources to Assist Teachers in Effective Teaching of General and General Advanced Mathematics - *Paul Negri, Alan Brookes*
D49 Moving to the TI-Nspire CAS for General Mathematics & Further Mathematics Teachers - *Russell Brown*
D50 Unification of Domains in Probability Distribution Chart - *Mohammed Mall*
D51 Further Maths: Further Maths Examination 2 - *Rob Vermay*

SESSION E: 9:00am - 10:00am Friday 5th December

EK1 Digital Content: Connecting Kids (Primary) - *Sue Ferguson, Leanne Robertson*
EK2 National Numeracy Review: A Forum - *Peter Sullivan, Marty Ross, Elizabeth Burns*
EK3 Making Connections in Junior Secondary Mathematics - *Colleen Vale*
E4 Student Maths Packs and Class Take Home Maths Activity Bags - *June Penney, Roger Suter*
E5 Show and Tell - *Sue Gunningham*
E6 Focussed Games to Assist in Teaching the Four Processes - *Sue Fine*
E7 Getting the Mathematical Message Out There - *Janine McIntosh, Katelyn Haites*
E8 Language and Literacy in Primary Mathematics Teaching - *Catherine Pearn, Helen Gist, Sue Young*
E9 Education for Consumer and Financial Literacy in Schools - *Social Education Victoria*
E10 Making the Connection: Helping Struggling Students Achieve - *Anita Chin*
E11 Whole School Improvement in Learning - *Paul Brown*
E12 Digging Into Hands-on Tasks - *Douglas Williams*
E13 I Spy the Pie - Box Cars Fraction Games - *Fiona Affleck, Miranda Milaszewicz*
E14 Building Mental Strategies - *Pauline Rogers*
E15 Working Mathematically in VELS - *Ian Lowe*
E16 Bit by Bit: Putting Fractions Together - *Shirley Collins, Wendy Falconer*
E17 Understanding Spatial Data - Mathematics & Geography Combine - *Pat Beeson*
E18 The Mathematics of Healthy Eating - *Rhonda Lyons*
E19 Using Diagrams In Problem Solving: Understand The Problem, Simplify The Solution - *George Booker*
E20 Open Ended Tasks in Number - *Leonie Anstey*
E21 Engaging Middle Years Students in Mathematics using the MATHOMAT - *Ted Marks, Steve Lewis*
E22 Writing and Implementing a New Mathematics Curriculum for the Cook Islands - *Alison Fagan*
E23 Developing Numeracy Skills Among Students with Disabilities and Learning Difficulties - *Rebecca Seah*
E24 A Mean Approach Can Be a Problem: Looking for Variation in Data - *Max Stephens*
E25 So This Will Be/Has Been Your First Year of Teaching Mathematics? - *Rob Vermay*
E26 Having Some Fun with Numeracy and Maths - *Dave Tout*
E27 Learning and using Geometers SketchPad - *Jessica Wagner, Hagir Eltayeb*
E28 Using Some Simple but Effective Technology Free Codes/Ciphers - *Peter Collins*
E29 HOTmaths – Let Me Count the Ways - *Sharon London*
E30 A Multimodal Approach to Middle Years Mathematics: Bridging the Seven Year Difference - *Tom Robinson, Chris Millard, John Davidson, Rachel Dean*
E31 Present It - *Peter Hartley*
E32 Using the Promethean Interactive Whiteboard in the Secondary Maths Classroom - *Helen Burns, Jennifer Leishman*
E33 Fostering a Culture of Problem-Solving in Mathematics - *Ray Peck*
E34 Whole Class Activities for Years 7-10 - *Theresa Pagon*
E35 Are We Still Investigating Mathematics? - *Mark O'Brien*
E36 Teaching Students to Solve Algebra Word Problems - *Anne Lawrence*
E37 Non-Routine Mathematics Problem-Solving Using Algebra - *Karim Noura*
E38 Using Geogebra in Senior School - *Peter Swain, Emily Hui*
E39 Helping You to Change Your Teaching From Reactive to Proactive - *Alexander Young*
E40 Wired and Wireless Networking of TI-Nspire Devices in the Classroom - *Ray Williams*
E41 A Beginners Look at the TI-Nspire Calculator - *Jennifer Curtis*
E42 Preparing To Land On Mars - NASA Spaceward Bound Expedition 2008 - *John Mitsinikos*
E43 Anyone for Geometry? - *Robert Money*
E44 Getting off First Base With The ClassPad - *Anthony Harradine*
E45 GeoGebra - *Brendan Owen*
E46 Discovery Based Learning Using New Symbolic Geometry Software - *Phil Todd*
E47 Applications and Modelling of Mathematics and the VCE - *Gloria Stillman, Phil Broadbridge, Michael Evans*
E48 Maths Methods Application Tasks Can be Interesting - *Michael Cody*
E49 Exploring the Potential of the TI-Nspire in Statistics - *Peter Jones*

E50 Matrices on the TI-Nspire CAS - *Russell Brown*

SESSION F: 10:45am - 11:45am Friday 5th December

FK1 Who's The Boss? The Roles of Mathematics and Reality in Problem Solving - *Irit Peled*
FK2 The Literacies of the Mathematics Learning Area - *Thelma Perso*
FK3 Linking Multiplication and Division in Helpful and Enjoyable Ways for Children - *Ann Downton*
F4 Teachers Making a Difference at P-2 - *Sue Gunningham*
F5 The How To and Where to With ICT and an IWB in EYN! - *Helen Baldock, Tania Hunt, Lisa Conibeer*
F6 Early Years Mathematics Learning and Interactive Pedagogical Practices - *Sharyn Livy*
F7 Structure: The Importance of Incorporating this Dimension Into Your Daily Program - *Fotini Godeassi, Rebecca Clark, Fiona Cavigan*
F8 Getting the Mathematical Message Out There - *Janine McIntosh, Katelyn Haites*
F9 Mathematics (Numeracy) Interview and VELS, Progression Points and Mathematics Continuum – What are the Links? - *Pamela Hammond*
F10 Education for Consumer and Financial Literacy in Schools - *Social Education Victoria*
F11 Give and Take Addition and Subtraction - *Pamela Hilditch, Penny Hedin*
F12 Addition and Subtraction Number Fact Strategies - Foundation for Mental Computation - *Rosemary Irons*
F13 Making Maths Marvellous with Manchester and Manipulatives - *Gabrielle West*
F14 Celebrating Student Work - *Douglas Williams*
F15 Mathematical Misconceptions in Years 3 & 4 - *Catherine Pearn*
F16 I Spy the Pie - Box Cars Fraction Games - *Fiona Affleck, Miranda Milaszewicz*
F17 Bit by Bit: Putting Fractions Together - *Shirley Collins, Wendy Falconer*
F18 Deliberate Acts of Teaching to Develop Early Multiplicative Thinking - *Charlotte Wilkinson*
F19 Frustrated by Fractions - A Practical Approach to Fractions - *Anna Miller*
F20 Working Mathematically: Australasian Problem Solving Mathematical Olympiads Workshop - *Anne Prescott, Jon Phegan*
F21 Sensible Mathematics Teaching and Sensible Mathematics Learning - *Len Sparrow, Paul Swan*
F22 Mathematics Through Paper Folding - *Marj Horne*
F23 Interactive Whiteboards in the Mathematics Classroom - *Lauren O'Grady*
F24 Developing Numeracy Skills Among Students with Disabilities and Learning Difficulties - *Rebecca Seah*
F25 Making the Most of a Good Activity - *Linda Anania, Natasha McCormick*
F26 Kids Teaching Kids: Student-Created Screencasts and Mathtrain.com - *Eric Marcos, Tony Richards*
F27 Using Some Simple but Effective Technology Free Codes/Ciphers - *Peter Collins*
F28 Interactive Geometry on the ClassPad Calculator - *Ian Thomson*
F29 HOTmaths – Let Me Count the Ways - *Sharon London*
F30 Maths Peer Tutoring Program at Ivanhoe Girls' Grammar School - *Angela Kotsiras*
F31 Planning Mathematics Units to Engage Middle Years Students - *Peter Sullivan, Carolyn Hamilton, Ian McArthur*
F32 Mathematics Pentathlon - *Denis Day, Subra Muniandy*
F33 An Integrated Approach to Consumer Maths - *Shane O'Connor, Daniela Baric*
F34 Interactive Maths Series Software Training (Computer Workshop) - *Paul Rehill*
F35 Maths in Sport - *Ian Lowe*
F36 Using Geogebra in Senior School - *Peter Swain, Emily Hui*
F37 Modelling Mathematical Concepts - Getting the Picture - *Brian Tweed, Jim Hogan*
F38 Wired and Wireless Networking of TI-Nspire Devices in the Classroom - *Ray Williams*
F39 Arithmetika and Cheetah in Action - *Tony Allan*
F40 Learning How to Use a CAS Calculator - *Hayden McQueenie, Chris Ly*
F41 Starbucks and the Mathematics of Coffee - *Brett Stephenson*
F42 Maths and Technology for Techno-Novices - *Geoff Campbell, Dean Lamson*
F43 A New Approach To The Conics - *Hussein Tahir*
F44 Exploring Functional Relations Using Computer Algebra - *David Leigh-Lancaster*
F45 Teaching with TI-Nspire CAS - *Bozenna Graham*
F46 Using the Casio ClassPad CAS in Year 11 & 12 Application Tasks - *Gael McLeod*
F47 Maths Methods Application Tasks Can be Interesting - *Michael Cody*
F48 Technology Rich Investigations - *Peter Fox*
F49 Matrices on the TI-Nspire CAS - *Russell Brown*
F50 Algebraic and Geometric Approaches To Finding $\{z : \arg(z - z^1) + \arg(z - z^2) = \text{theta}\}$ - *John Kermond*

SESSION G: 12:00pm - 1:00pm Friday 5th December

GK1 Innovations in Mathematics, Science and Technology Teaching - *Konrad Krainer*
GK2 Dynamic Mathematics at Early Grades with Cabri Elementary - *Jean-Marie Laborde*
GK3 Improving Middle School Students' Proportional Reasoning - *Kim Beswick*
G4 Teachers Making a Difference at P-2 - *Sue Gunningham*

G5 Strategies For Enhancing Number Sense - *Douglas Williams*
G6 Rolling In the Dough - *Fiona Affleck, Miranda Milaszewicz*
G7 Student Maths Packs and Class Take Home Maths Activity Bags - *June Penney, Roger Suter*
G8 Nelson Teaching Interactives for Interactive Whiteboards - *Brian Lannen*
G9 Finding Better Ways - *Aaron Peeters, Alicia Sibly*
G10 Mathematics (Numeracy) Interview and VELS, Progression Points and Mathematics Continuum – What are the Links? - *Pamela Hammond*
G11 Crafting Learning Activities for Individual Students or a Whole Class - *Tony Collison*
G12 Give and Take Addition and Subtraction - *Pamela Hilditch, Penny Hedin*
G13 Developing Algebraic Thinking within a Primary School Setting - *Will Windsor*
G14 Beating the Groan - *Marcus Finlay*
G15 Fantastic Folding Feats - *Allan Turton*
G16 An Even Start - National Tuition Program - *Catherine Pearn, Ray Peck*
G17 Deliberate Acts of Teaching to Develop Early Multiplicative Thinking - *Charlotte Wilkinson*
G18 Connecting The Dots: Towards Better Understanding - *Jan Cavanagh*
G19 Frustrated by Fractions - A Practical Approach to Fractions - *Anna Miller*
G20 New Interactive Resources for Grades 5 & 6 - *Paul Negri, Alan Brookes*
G21 Working Mathematically: Australasian Problem Solving Mathematical Olympiads Workshop - *Anne Prescott, Jon Phegan*
G22 How Connected are Gears, Ratios and Fractions? - *Debora Lipson*
G23 Open Ended Tasks in Number - *Leonie Anstey*
G24 Mathematics Through Paper Folding - *Marj Horne*
G25 What is new on the Mathematics Domain Page? - *Helen Gist, Clyde Juriansz*
G26 Making the Most of a Good Activity - *Linda Anania, Natasha McCormick*
G27 Having Some Fun with Numeracy and Maths - *Dave Tout*
G28 Learning and using Geometers SketchPad - *Jessica Wagner, Hagir Eltayeb*
G29 Bringing Digital Photography Into Learning Focus - *Damian Howison, Chris MacDonald*
G30 Planning Mathematics Units to Engage Middle Years Students - *Peter Sullivan, Carolyn Hamilton, Ian McArthur*
G31 Classroom Organising, Topic Planning and Student Tracking AND Reducing Teacher Workload - *Bill Murray, Lauren James*
G32 Mathematics Pentathlon - *Denis Day, Subra Muniandy*
G33 An Integrated Approach to Consumer Maths - *Shane O'Connor, Daniela Baric*
G34 I Didn't Know You Could Do That: Dynamic Algebra on the TI-Nspire - *Stephen Arnold*
G35 Geogebra - Exploring Geometry - *Theresa Pagon, Cameron Hallowell*
G36 Effective Secondary Teaching About the Mathematics of Gambling - *Donald Smith*
G37 Graphing Calculators And Assessment - *Jeyaletcumi Muthiah*
G38 Dynamic Geometry Enriching Curriculum Materials for Middle Secondary School Mathematics - *Kaye Stacey, Robyn Pierce*
G39 Teaching Sustainability Concepts Using Online Tools - *Lauren Baird, David Collins*
G40 Project Based Learning in the 21st Century - *Lyn McGoldrick, Joanne Roughan*
G41 Starbucks and the Mathematics of Coffee - *Brett Stephenson*
G42 Activities to Get Started on the TI-Nspire CAS - *David Greenwood, Sylvia Michaels*
G43 The Use of the Casio ClassPad 300 at Year 10 - *Mark Nesbitt, Greg Barras*
G44 The Limitless Performance Program - *Jack Delosa*
G45 TI-Nspire CAS Calculators for Beginners - *Shirly Griffith, Pauline Holland*
G46 Fathom, Autograph and Tablet PCs in Teaching Maths - *Elizabeth Bailey*
G47 How do the Lessons Learned from my Experience at ICME-11 in Monterrey this Year Reflect the Issues with CAS Here in Victoria? - *Sue Garner*
G48 Interesting Tips for Solving Challenging Further Maths Exam 2 Questions - *Hatice Mohamed*
G49 Technology Rich Investigations - *Peter Fox*
G50 Shape Up! - *Ruth Goddard*

SESSION H: 2:00pm - 3:00pm Friday 5th December

HK1 Identifying Problem Solving in School Mathematics: Students' and Teachers' Perspectives - *Judy Anderson*
HK2 Theorems by Theatre - *Marty Ross, Burkard Polster*
H3 Many Ways to Make the Connections - *Jan Cavanagh*
H4 Rolling In the Dough - *Fiona Affleck, Miranda Milaszewicz*
H5 Early Years Mathematics Learning and Interactive Pedagogical Practices - *Sharyn Livy*
H6 Online Resources for the Mathematics Classroom - *Kerry Rowett*
H7 Maximising Success for Children Using Rotational Activities - *Kim Kirkpatrick, Sherilyn Butler*
H8 Finding Better Ways - *Aaron Peeters, Alicia Sibly*

H9 Developing Algebraic Thinking within a Primary School Setting - *Will Windsor*
H10 Making Maths Marvellous with Manchester and Manipulatives - *Gabrielle West*
H11 Children Making Mathematical Connections Through Solving Their Own Problems - *Chris Hurst*
H12 Strategies to Promote Algebraic Thinking in the Primary Years - *Calvin Irons*
H13 Beating the Groan - *Marcus Finlay*
H14 Mathematical Misconceptions in Years 3 & 4 - *Catherine Pearn*
H15 Numbers Are Your Friends - *Helen Chick*
H16 'Higher, Faster, Stronger' Inquiry-based Cluster Maths Project Using the Olympics - *Miranda Price, Nancy Prince*
H17 Lesson Study: An Effective Teacher Professional Learning Model - *Peter Sanders, Lyn Forsyth*
H18 How Connected are Gears, Ratios and Fractions? - *Debora Lipson*
H19 Mathematical Problem Solving - A New Paradigm - *Tin Lam Toh*
H20 Using Mathematica Demonstrations Project Resources in Middle School - *Peter Hartley*
H21 Using TI-Nspire CAS Calculators in Years 7 to 9 - *Rodney Anderson*
H22 What's the Angle? - *Denis Day, Subra Muniandy*
H23 Fostering a Culture of Problem-Solving in Mathematics - *Ray Peck*
H24 Vodcasting Mathematics - *David Phillips, Lynnette George*
H25 Mathematics in Te Reo Māori - Who Needs English? - *Brian Tweed*
H26 Integrating Computer Marked Assessment - The Daramalan Experiment - *Tony Allan*
H27 Learning How to Use a CAS Calculator - *Hayden McQueenie, Chris Ly*
H28 A Beginners Look at the TI-Nspire Calculator - *Jennifer Curtis*
H29 Dynamic Geometry Enriching Curriculum Materials for Middle Secondary School Mathematics - *Kaye Stacey, Robyn Pierce*
H30 Getting off First Base With The ClassPad - *Anthony Harradine*
H31 Maths and Technology for Techno-Novices - *Geoff Campbell, Dean Lamson*
H32 A New Approach To The Conics - *Hussein Tahir*
H33 The Limitless Performance Program - *Jack Delosa*
H34 TI-Nspire CAS Calculators for Beginners - *Shirly Griffith, Pauline Holland*
H35 Fathom, Autograph and Tablet PCs in Teaching Maths - *Elizabeth Bailey*
H36 Using Resources to Assist Teachers in Effective Teaching of General and General Advanced Mathematics - *Paul Negri, Alan Brookes*
H37 Maths Methods (CAS) - Additional Content in the CAS Course - *Frank Moya*
H38 Maths Why Not - *Tom Delahunty*
H39 How Much Further? - *Andrew Stewart*
H40 VCE Mathematical Methods, Examination 2 - *Bruce Henry, Mary Papp*
H41 Shape Up! - *Ruth Goddard*

SESSION DETAILS
SESSION A: 10:45am - 11:45am Thursday 4th December

AK1 Making Connections: The 'Really Big' Ideas in Number P to 8

Dianne Siemon - RMIT University

Keynote **Years P - 8**

Teachers have long been concerned about the crowded curriculum and the lack of clear, concise guidelines about the key ideas and strategies needed to make progress in school mathematics. This is particularly the case for Number which is the area most responsible for differences in student mathematics achievement by the middle years of schooling. This presentation will consider what the 'really big ideas' in Number might be, how they connect to a range of underpinning ideas and each other, and what is needed to ensure that all students develop a sound understanding of numeration and operations in Years P to 8.

***Di Siemon** is a Professor of Mathematics Education in the School of Education at RMIT University (Bundoora) where she is involved with the preparation of pre-service teachers and the supervision of higher degree students. Di is also involved with the professional development of practicing teachers, particularly in relation to the development of the 'big ideas' in number, the teaching and learning of mathematics in the middle years, and the use of rich assessment tasks to inform teaching. She is the Research Director of the Building Community Capacity to Support Sustainable Numeracy Education in Remote Locations Project (2006-2008) and was the Research Director of the Scaffolding Numeracy in the Middle Years Project (2003-2006). Di was the Project Director for the recently completed Northern Territory Numeracy Strategic Numeracy Research and Development Project (2003-2004), the Researching Numeracy Teaching Approaches in Primary Schools Project (2001-2003), and the Middle Years Numeracy Research Project: 5-9 (1999-2001), the last two of which were conducted in collaboration with the Victorian Department of Education and Training, the Catholic Education Office and the Association of Independent Schools. Di is a Past President of the Australian Association of Mathematics Teachers and the Mathematical Association of Victoria.*

AK2 Students Making the Connections Between Algebra and Word Problems

Anne Lawrence - Massey University College of Education, New Zealand

Keynote **Years 7 - 11**

What are algebra word problems? Why do students find them difficult? What can teachers do to help their students tackle them with more success? This presentation addresses these questions, examining the different ways that students and experts tackle algebra word problems and discussing the challenges involved in creating a 'press for algebra'.

***Anne Lawrence** (BSc, DipTchg, MEdStuds) is the Team Leader for the Numeracy and Mathematics advisers at the Centre for Educational Development, Massey University, New Zealand. Prior to this, Anne was Head of the Mathematics Department at an urban co-educational secondary school. As an adviser, Anne works with teachers in a wide range of schools. A major component of her role over the past four years has been to support teachers implementing the Numeracy Project in New Zealand secondary schools. Her particular interest is in expanding the range of effective teaching strategies that mathematics teachers use. Recently, Anne's work on algebra word problems has led her to explore ways of making useful connections between literacy and numeracy.*

A3 Planning Practical Activities CONNECTED to Teaching Approaches

Donna Ludvigsen - Department of Education & Early Childhood Education (DEECD)
Naomi Sordello - Redan Primary School

Lecture **Years P - 4**

Donna Ludvigsen is a Senior Programs Officer for Numeracy; she joins with Naomi Sordello, a Maths Teaching Learning Coach to explore practical whole class, teaching group and independent activities in the classroom. A range of materials (numberlines, arrow cards, etc) will be examined and demonstrated. A resource package will be provided.

Repeated as B5

A4 THIS WORKS FOR ME! Activities from Prime Number

Sue Gunningham - Sue Gunningham Consultancy Services P/L

Workshop **Years P - 6**

Prime Number is the MAV's journal for primary school teachers. Each edition contains ideas and activities contributed by teachers who have used them with success in their own classrooms. During this hands-on workshop participants will trial some of the activities from past editions of Prime Number.

Repeated as B8

A5 Taking Tangrams Further

Allan Turton - Origo Education

Workshop **Years P - 8**

The value of tangrams goes far beyond just entertaining recreation. From the very early years to upper primary, tangram pieces can be used for many investigations into compound shapes, angles, fractions, area and visual thinking in general. In this hands-on workshop, participants will explore these topics using the familiar seven-piece tangram, at their desks and with exciting new software. (Commercial Presentation)

Not Repeated

A6 Fractions Versus VELS: Making Sense and Teaching Richly

John Gough - Deakin University

Lecture **Years P - 8**

Fractions are different from other numbers: they need new ways of working - right? No. That's a recipe for relying on unexplainable rote rules. Fraction calculations are sensibly based in properly understood whole-number operations. If we really know how to multiply and divide (and add and subtract) whole-numbers, doing the same kinds of things with fractions will be easy, and memorable. But how does this fit with VELS and Progression Points? What is the Fraction Curriculum, and how could we teach it?

Not Repeated

A7 Pre-service Mathematics Education: Expectations of Expert and Novice - What Connections are Made?

Judith Falle - University of New England, NSW
Naomi Pask - University of Melbourne

Lecture **Years P - 10**

Lecturers (experts) have particular ideas of what their students (novices) need to know in order to be prepared for teaching (mathematics). These might, or might not, be the same as those of their students. This presentation presents a reflective conversation that aims to discover where the connections between perspectives of novice and expert are made, and where they need to be made. The context will be that of preparation to teach mathematics, although underlying pedagogical issues will, of necessity, be discussed. There are also implications for professional development programs.

Repeated as B12

A8 Improving Student Engagement and Results Through e-learning

Julie Thompson - 3P Learning/Mathletics
Brendan Colley - 3P Learning/Mathletics
Claire O'Connor - 3P Learning/Mathletics

Computer Lab **Years P - 12**

Mathletics is Australia's leading online mathematics learning resource. Student engagement, improved results and up to the second formative data are the cornerstones to Mathletic's success. See why over 3000 schools and 1 million students are using Mathletics. This is a practical demonstration of the resource. (Commercial Presentation)

Repeated as C11

A9 Intervention, Extension, Revision and Assessment - Kinetic Education

Mary Sanghvi - Kinetic Education

Computer Lab **Years P - 12**

Hands-on computer workshop using the Maths Wiz (and English Wiz) computer programs developed here in Melbourne by Kinetic Education. Mary is a keen believer in using technology to take the boredom out of mundane learning tasks and thus inspire interest, instead of apathy. (Commercial Presentation)

Repeated as B13

A10 Language and Maths - Some Issues and Activities

Dave Tout - CAE & Multifangled

Workshop **Years P - Adult**

This presentation and hands-on workshop will look at some ideas about the important role that language takes in the teaching and learning of mathematics. The implications of this for the teaching of numeracy and mathematics will be discussed and a number of teaching strategies and activities demonstrated that encourage students to talk mathematics.

Not Repeated

A11 Strategies to Promote Algebraic Thinking in the Primary Years

Calvin Irons - Queensland University of Technology

Lecture **Years 2 - 6**

This session will describe an overall teaching sequence, with sample activities, to establish a sound foundation for algebra that can be used as a 'launching pad' for the more formal study of the discipline in the secondary school. The sequence will include ideas for the development of equality, relationships and functions.

Repeated as H12

A12 Hands-on Fractions

Peggy Ashton - Education Consultant

Jenny Vincent - Education Consultant/Author

Workshop **Years 2 - 6**

This workshop will explore fractions through hands-on activities. The focus will be on supporting student understandings through the use of appropriate models. Activities are designed to stimulate discussion enabling students to clarify fraction concepts. A CD of activities will be provided.

Repeated as B16

A13 From Games To Investigations

Douglas Williams - Black Douglas Professional Education Services

Workshop **Years 2 - 10**

'Start from where the kids are at' - a good principle for guiding lesson planning. Well we pretty much know where all kids are at with respect to playing games - they love it. In this workshop we explore some table top games for two which capture that interest, then we add kinaesthetic and visual components to the recipe, discuss and explore a hidden challenge, and before you know it, you are working like a mathematician investigating a problem. Genuine mathematical content, thoughtful teaching craft and we will be Working Mathematically in VELS.

Not Repeated

A14 Helping You to Change Your Teaching From Reactive to Proactive

Alexander Young - FlickNTick Pty Ltd

Lecture **Years 3 - 6**

The presentation will demonstrate how easy it is to change your teaching from reactive to proactive. AutoMarque Version 2 will help you achieve this by,

1. Boosting the quality of your teaching.
2. Enhancing your students' focus.
3. Reducing your workload.

(Commercial Presentation)

Not Repeated

A15 Building Mental Strategies

Pauline Rogers - University of Ballarat

Lecture **Years 3 - 7**

The difference between practice/rote and truly building students' mental mathematics skills will be examined during this session. A focus of the session will be multiplication strategies; however other areas will be examined. These strategies would be useful for supporting students at risk or within intervention programs (at both primary and secondary levels).

Notes: Participants will be able to download a free resource onto thumbsticks during the session.

Repeated as E14

A16 Working Mathematically in VELS

Ian Lowe - The Mathematical Association of Victoria

Workshop **Years 3 - 10**

On the MAV website, free to members, are yearly plans for Years 3 to 10. Many schools with Maths With Attitude kits use these guides to using Maths300 lessons and the Problem Solving Task Centre materials (for Working Mathematically) along with many other excellent materials (for Toolbox concepts and skills). Ian will explain how they link to VELS and provide examples.

Repeated as E15

A17 The In and Outs of Mathematics Problems

Nick Connolly - Educational Assessment Australia, NSW

Lecture **Years 3 - 11**

Using mathematics problems to stretch, educate and assess students' mathematical ability is a strategy in maths education that is thousands of years old. This session will look at the history and technique of crafting effective maths problems.

Repeated as B18

A18 Engaging Students in the Bronx Using Mathomat Template

Steve Lewis - A.U.S.S.I.E. Maths Consultant, New York

Christine Scafidi - A.U.S.S.I.E. Maths Consultant, New York/New Jersey

Workshop **Years 4 - 8**

The use of personal technology like the Mathomat inspires students to take control of their own learning, produce quality work that is well presented and have ownership of the mathematics they have investigated. By disaggregating the task, students can sketch concepts and sequence problem solving steps while reserving valuable time to reinforce the concepts they are learning. In this session participants will investigate how using the Mathomat Template provides an effective way to close the achievement gap for disengaged students. Sample lessons will be workshopped along with materials introduced successfully in New York and New Jersey elementary/middle schools in the United States. (Commercial Presentation)

Not Repeated

A19 Keeping The Interest, Momentum and Challenge High in Numeracy and Algebra at Years 4-8

Tracey Snape - University of Canterbury - Education Plus, New Zealand

Workshop **Years 4 - 8**

This will be a practical workshop providing opportunities to interact with a variety of great Numeracy and Algebra activities. The focus is on challenging children's thinking through questioning, problem solving and other open-ended teaching strategies.

Not Repeated

A20 Teaching While You Are Sleeping: Providing 24/7 Learning Support

Alan Thwaites - Kambrya College

Lecture **Years 4 - 12**

A student is at home trying their hardest to get through the mathematics problems their teacher has set, but they are stuck. The explanations in the text do not help and there is no one at home who can help them. Do you feel their frustration? This session looks at how mathematics teachers at Kambrya College use Interactive Whiteboards to create learning artefacts, many of which are made during class time, to provide learning support for students. By posting these IWB products to Wikis and Blogs students have 24/7 access to support materials that are specific to their learning needs in mathematics.

Repeated as B19

A21 'Shake Rattle and Roll' Out the Maths with Box Car Games

Fiona Affleck - EdSource, WA

Miranda Milaszewicz - Chatham Primary School

Workshop **Years 5 - 7**

Come prepared to play and be amazed at the teaching learning and assessment opportunities created with Box Cars game pedagogy. Box Car games develop mathematical skills and concepts, creating a fun motivational approach to the teaching of maths with no teacher preparation time needed. Following this workshop your students will love playing operation, place value, pre-algebra and decimal games in the classroom using simple cards and dice equipment. (Commercial Presentation)

Repeated as B21

A22 Engaging Mathematics Classes For Middle Years Students

Donna Krenn - Ferntree Gully North Primary School

Workshop **Years 5 - 8**

Ensuring classes for middle years students are both engaging and effective can be challenging. This session will focus on planning, lesson structure and include highly motivating activities that address VELS.

Repeated as D17

A23 Using a Measurement Model to Develop Understanding About Fractions

Max Stephens - University of Melbourne

Catherine Pearn - University of Melbourne

Workshop **Years 5 - 8**

Some students know routine algorithms for working with fractions but may lack understanding of fraction concepts and representations including number lines. This inability seems to be a result of their limited experiences in using number lines (measurement model) in their work on whole numbers. This session will be 'hands-on' and uses paper folding, fraction walls and number lines to develop an understanding of fractions using a measurement model.

Repeated as D19

A24 Lesson Study: An Effective Teacher Professional Learning Model

Peter Sanders - La Trobe University

Lyn Forsyth - Brentwood Park Primary School

Lecture **Years 5 - 8**

The Berwick South Cluster Numeracy Team are developing exemplar tasks, initially in Fractions and now in Structure. To trial these lessons, a professional learning model Lesson Study was chosen. This presentation will explain how Lesson Study works in the Berwick South cluster of schools, and detail its effectiveness as a model for teacher professional learning.

Repeated as H17

A25 Sundials and Other Solar Instruments

Trish Christies - Scienceworks

Tim Byrne - Croxton Special School

Workshop **Years 5 - 8**

This workshop aims to connect teachers and students to the biggest body in the Solar System; our Sun. The simple mathematics and science which underscore sundials can be understood by many upper primary school students. This workshop provides the scientific background and instructions for making simple shadow casting instruments that measure the Sun's altitude, zenith and azimuth. Participants will construct at least two sundials during the session and will be provided with a resource pack that will include the mathematics/formulas to construct many more sundials for sundial enthusiasts.

Not Repeated

A26 Enhancing Mathematics Teaching Using Interactive Whiteboards

Lauren O'Grady - Edsoft Pty Ltd

Workshop **Years 5 - 9**

Lauren will present a variety of ideas for the teaching of maths with IWB's. Her session will include the use of Activ Studio, Easiteach, Digital Learning Objects, Mult-e-Maths and associated software. (Commercial Presentation)

Repeated as D20

A27 Writing and Implementing a New Mathematics Curriculum for the Cook Islands

Alison Fagan - Massey University College of Education, New Zealand

Lecture **Years 5 - 10**

A review of the process of writing and implementing a new mathematics curriculum for the Cook Islands and in particular linking it with the New Zealand Numeracy Project. Relevant and culturally appropriate resources were developed to assist teachers, and these were demonstrated in conjunction with the implementation at inservice and preservice workshops. These workshops were held on 8 of the inhabited islands, some up to 4 hours flying time away and often in difficult conditions.

Repeated as E22

A28 Mathematics Fractions and Decimals Interview - A Powerful Assessment Tool on the Web

Helen Gist - Department of Education, Early Years Childhood Development

Clyde Juriansz - Department of Education & Early Childhood Development

Workshop **Years 5 - 10**

The Mathematics Fractions and Decimals Interview was launched in April 2008. This web based program is used by teachers in one-to-one interview situations to determine students' existing mathematical knowledge in relation to rational number concepts. It is appropriate for middle years students. Familiarise yourself with the interview

and enhance your knowledge of students' mathematical understandings and supporting planning for focussed teaching.
Notes: A new resource will be highlighted during the presentation, the Mathematics Fractions and Decimals interview.
Not Repeated

A29 Experience Using CensusAtSchool Data
Ian Wong - Australian Bureau of Statistics
Computer Lab **Years 5 - 12**
Take the opportunity to experience the CensusAtSchool data and see for yourself how to use it in the classroom. CensusAtSchool data is a rich resource for all statistics studies and problem solving from upper primary to VCE. You will find out how to obtain the sample you want and tailor it to the needs of your students. You will have the opportunity to use Excel to analyse your data, use functions and draw graphs. You don't need to have used CensusAtSchool data before but, having seen the questionnaire would be an advantage. See what else is available on the website to support you.
Not Repeated

A30 Kids Teaching Kids: Student-Created Screencasts and Mathtrain.com
Eric Marcos - Lincoln Middle School, USA
Tony Richards - IT Made Simple
Lecture **Years 6 - 8**
This presentation focuses on a 'kids teaching kids' model and how it helped spark student interest and enthusiasm inside and outside the math class. Middle school students created math video lessons and collaborated via a Moodle-powered class web site, called Mathtrain.com. The student-created math videos were also the foundation and 'episodes' of the class podcast on iTunes and were posted on Mathtrain.TV, as well as YouTube, Google Video and TeacherTube.
Notes: This presentation will be conducted with Eric Marcos in the US and Tony in Melbourne.
Repeated as F26

A31 Improving Numeracy Through Differentiating the Maths Curriculum
Nikki Boyce - Broadford Secondary College
Kerryn Sandford - Broadford Secondary College
Joanne Ganis - Broadford Secondary College
Lecture **Years 7 - 8**
In essence, we would like to present the work that we have been conducting through our Teacher Professional Leave project on improving numeracy through differentiating the curriculum and using the VELS as a planning guide. Over the past year, we have been trialling different models of differentiated curriculum in Year 7 and 8 maths classes and we believe that we have developed a sustainable and useful model for middle years mathematics. in particular, the ability to address specific numeracy issues as well as student agency and interest has been a highlight of the project. The planning model draws on the VELS as the curriculum organiser and we have made extensive use of the maths continuum as well as numerous other programs and research, such as the Scaffolding Numeracy in the Middle Years Project.
Repeated as B27

A32 A Multimodal Approach to Middle Years Mathematics: Bridging the Seven Year Difference
Tom Robinson - Fitzroy High School
Chris Millard - Fitzroy High School
John Davidson - Fitzroy High School
Rachel Dean - Fitzroy High School
Lecture **Years 7 - 8**
Staff at Fitzroy High School have been working with consultant Charles Lovett to develop a multimodal approach to mathematics in Years 7 and 8, that focuses on improving math skills across the board. Students work from a menu based booklet that includes whole class lessons, computer-based activities, hands-on tasks and worksheets. Students are able to work both independently and in small groups concentrating on the areas in which they need improvement. Students are more motivated to complete work and participate in classes. The data shows a marked improvement from Years 7 to 8. This session will explore the structure of the booklet, materials used, the approaches taken and some of the initial data obtained.
Repeated as E30

A33 Using Mathematica Demonstrations Project Resources in Middle School
Peter Hartley- Carey Baptist Grammar School
Computer Lab **Years 7 - 9**
The Demonstrations Project is providing a rich source of free interactive programs that can readily be used in

the classroom. Mathematica Player is a free download from the Web and with it students can manipulate 2 and 3 Dimensional models, solve numeric problems and explore algebra. We will mostly look at the powerful 3D modelling features and how they can be integrated into Middle school lessons.
Repeated as H20

A34 Integrating Working Mathematically into the Curriculum with the Maths Task Centre Project
Damian Howison - MacKillop College
Chris MacDonald - MacKillop College
Workshop **Years 7 - 10**
This presentation will show how a task centre was set up at MacKillop College with a view to improving the teaching and learning of problem solving and addressing the WM dimension explicitly. It will include ideas for creating a space for working mathematicians, supporting teachers in the delivery of such a curriculum and assessing WM. Discussion will focus on the beginnings as well as the developments that have taken place with the task centre over the past two years.
Not Repeated

A35 Technology Enhanced Mathematics
Marcel Van Otterdyk - Strathmore Secondary College
Computer Lab **Years 7 - 10**
Technology is an invaluable tool in empowering students in Mathematics. Software such as Google Sketchup and Lego Mindstorms enable students to do meaningful mathematical applications, motivating them to reason and communicate. Students feel empowered because the applications are quite intuitive. Participants will use a number of applications in this workshop.
Not Repeated

A36 Whole Class Activities for Years 7-10
Theresa Pagon - Jacaranda (John Wiley & Sons)
Workshop **Years 7 - 10**
Presentation of a series of activities for use in Year 7-10 classrooms. Activities are targeted to explore specific concepts through group work and class discussion. Participants will receive a booklet of activities and accompanying a teacher guide for each activity. (Commercial Presentation).
Repeated as E34

A37 Bungee Jumping and The Leaning Tower of Poser
Denis Day - Glenvale School
Subra Muniandy - Glenvale School
Workshop **Years 7 - 10**
Two hands-on activities are presented in this workshop which are both fun and rich in mathematics. Participants will be involved in completing both tasks so that on their return to school can easily conduct them with their own classes.
Repeated as B29

A38 Non-Routine Mathematics Problem-Solving Using Algebra
Karim Noura - Bayside Secondary College
Lecture **Years 7 - 12**
Teachers will share their experience to solve non-routine mathematical problems (possible open-ended problems) using various strategies including algebra in particular. CAS calculators will be very useful for the presented problems.
Notes: Please bring your CAS calculator to this session.
Repeated as E37

A39 I Didn't Know You Could Do That: Dynamic Algebra on the TI-Nspire
Stephen Arnold - Compass Learning Technologies, NSW
Workshop **Years 7 - 12**
This hands-on workshop focuses on some of the lesser-known features of the TI-Nspire CAS as a teaching and learning tool for algebra across the secondary years. In particular, we learn how to make full use of the dynamic algebra capabilities of the Lists and Spreadsheet application from the early years through to calculus.
Notes: Bring along your own TI-Nspire CAS handheld or laptop with TI-Nspire software installed, or use a device supplied at the workshop.
Repeated as G34

A40 Opportunities For Proof

Paul Brown - Carmel School, WA

Lecture **Years 8 - 12**

Proof is a unique feature of Mathematics, a feature that distinguishes mathematics from other sciences. We can incorporate proof in many topics, starting with informal proofs at the beginning of high school. Students enjoy proof, and they are capable of elegant and insightful proofs much earlier than we expect. Paul will present methods of incorporating proof into several topics, and will demonstrate activities that lead students to creating proofs.

Not Repeated

A41 Computer Marked Assessment - Emerging Issues

Tony Allan - Daramalan College, Canberra

Lecture **Years 8 - 12**

With increasingly sophisticated assessment possible using computers a host of issues arise: fairness, marking rigour, part-marks, copying, security, hardware constraints - and more. This session will begin with a short presentation then give participants an opportunity to discuss these issues. Reference will be made to the way that the Arithmetika Assessment Manager program addresses these issues but is NOT a commercial presentation.

Not Repeated

A42 Preparing To Land On Mars - NASA Spaceward Bound Expedition 2008

John Mitsinikos - Strathmore Secondary College

Lecture **Years 9 - 10**

"The experience of a life time" everybody said before I left. They were not wrong! I was lucky enough to be part of the NASA Spaceward Bound Mojave Desert expedition of 2008. The main highlight of the trip was the one week I spent researching and collecting data with some of the most talented scientists in the world. That research will be used as signatures by interplanetary scientists who are currently working closely with the Mars Rover Missions. This was a fantastic experience which has now equipped me with the skills to engage students in conducting scientific experiments and more importantly the accompanying mathematical analysis. In this session I will outline the skills and the resources I have learned and developed. Also in 2009, NASA will run a similar expedition in outback South Australia which will be open to Australian educators and I will be providing details of this trip.

Repeated as E42

A43 TI-Nspire Calculator for the Lower Secondary

Lisa Sinibaldi - St Mark's Anglican Community School

Workshop **Years 9 - 10**

This session will be a practical, hands-on activity using examples of activities suitable for use in the lower secondary school.

Not Repeated

A44 Working Mathematically: Exciting New Classroom Resources for Teachers

Lloyd Dawe - Inaburra School, NSW

Monique Miotto - Mathematics Education Consultant for Macmillan Education

Workshop **Years 9 - 10**

Looking for some new interesting investigational resources to engage students? Extend those top students? This session will introduce you to some new photo-copyable lessons from the soon to be published Working Mathematically II by Lloyd Dawe. Since retiring as an Associate Professor of Mathematics Education at the University of Sydney, Lloyd has written resources, including Working Mathematically I for Years 7 and 8, and worked as a consultant to schools, supporting teachers in their efforts to engage students in higher order mathematically thinking. The session this year will include new topics such as finding the epicentre of an earthquake, finding your latitude at the Equinox, exploring the Platonic geometry of the Fluorite Crystal and much more. Technology is utilised as appropriate to facilitate learning. Teacher notes and full solutions are provided. (Commercial Presentation)

Notes: A graphics calculator will be useful.

Repeated as B40

A45 Moulding a Novice CAS User Into an Expert

Kevin McMenamin - The Peninsula School

Workshop **Years 9 - 11**

This hands-on workshop will explore activities that utilise the capabilities of a CAS system. You will have the opportunity to work with the user friendly Casio ClassPad and to explore the built-in applications best suited to your mathematics classroom. These activities will also show how easy it is for students, and teachers, to become expert users of this technology.

Notes: Loan calculators will be available at the session.

Not Repeated

A46 GeoGebra

Brendan Owen - Ringwood Secondary College

Computer Lab **Years 9 - 12**

This is a hands-on computer workshop developing lessons using GeoGebra, GeoGebra is a free and multi-platform dynamic mathematics software for schools that joins geometry, algebra and calculus. On the one hand, GeoGebra is an interactive geometry system. You can do constructions with points, vectors, segments, lines, conic sections as well as functions and change them dynamically afterwards. On the other hand, equations and coordinates can be entered directly. Thus, GeoGebra has the ability to deal with variables for numbers, vectors and points, finds derivatives and integrals of functions and offers commands like Root or Extremum.

Repeated as E45

A47 So What Do Engineers Do? (Connecting Mathematics to Engineering)

Debra Leong - Hillcrest High School, New Zealand

Lecture **Years 9 - 12**

This session has three parts:

1. How NZ mathematics students in their last year at school make career choices, and their view on engineering.
2. What engineering offers as a possible career path for mathematically inclined students - there are awesome opportunities!
3. Some real examples of mathematics in engineering for classroom use.

(A high school mathematics teacher's excursion into engineering prompted by the question "So where will we use this (maths) Miss?" Debra has spent 2008 out of school as a NZ Science, Mathematics and Technology Teacher Fellow looking at how maths is used in engineering and as a potential career path.)

Not Repeated

A48 Linking Linear Functions and Measurement: Investigating Using CAS

Roger Wander - University of Melbourne

Lecture **Years 10 - 11**

In this session, participants will be introduced to a unit of work which enables a wide range of CAS functionality to be used over a series of 6 (assuming 80 minutes' duration) sequential lessons. The algebraic and geometric properties of sketch graphs of linear functions are used to explore the area of triangular regions formed in the coordinate plane by these graphs and the axis. All VELS dimensions are addressed, out-of-class work tasks encourage exploration, and the accumulated knowledge and skills are applied to a design problem suitable for either individual or group work as an assessment task.

Notes: Participants should bring a CAS calculator to the session OR a parallel computer product on a fully-charged laptop. The demonstration will be done using TI-Nspire CAS Computer Software and Geometer's Sketchpad software; participants will be able to access e-files of all associated paperwork, including a version with TI-89 Titanium screen dumps after the session.

Repeated as C45

A49 Univariate and Bivariate Statistics Calculations Using the TI-89 (CAS Calculator)

Stuart Payne - Bendigo Senior Secondary College

Suzanne Janssen - Bendigo Senior Secondary College

Workshop **Years 10 - 12**

With the introduction of CAS into the VCE curriculum, more and more students with CAS calculators need to perform statistics calculations for both Univariate and Bivariate data. This option is a workshop that will show you how to use the TI-89 CAS calculator to do all the different types of statistical calculations needed – from calculating the mean through to residual plots and transforming data. I am hopeful that TI-89s can be supplied but bring your TI-89 just in case. Sorry - no other type of CAS calculator is supported for this workshop.

Notes: TI-89 calculators may be supplied but bring your own TI-89 just in case.

Repeated as B46

A50 Exploring the Potential of the TI-Nspire in Statistics

Peter Jones - Swinburne University of Technology

Workshop **Years 11 - 12**

The TI-Nspire with the latest version of its operating system comes with very much enhanced statistical capabilities. This session will give participants hands-on experience using the TI-Nspire with the aim of assessing its potential in VCE level statistics and, in particular, its use in conducting statistical investigations.

Repeated as E49

A51 Mathematics and The Theory of Knowledge (IB course)

Rosetta Batsakis - Wesley College

Workshop **Years 11 - 12**

Mathematics as an 'Area of Knowledge' is often treated within the Theory of Knowledge classroom, but often overlooked within the actual mathematics class other than what is offered in the textbook. This workshop is designed to look at ways ToK concepts can be incorporated within the curriculum of the Mathematics (Standard Level) IB course. Some worksheets will be supplied, but we will also look at ways to create stimulating exercises that promote critical thinking in the IB student as part of the topic being studied.

Not Repeated

A52 Specialist Mathematics 2008 and Beyond

Allason McNamara - Mount Scopus Memorial College

Philip Swedosh - St Leonard's College

Lecture **Years 12 - 12**

Philip and Allason are members of the Specialist Mathematics Setting Panels. They will outline the common errors which were made on the 2008 examination papers with a view towards the 2009 examinations.

Not Repeated

A53 Algebraic and Geometric Approaches To Finding {z : arg(z - z^1) + arg(z - z^2) = theta}

John Kermond - Haileybury College

Lecture **Years 12 - 12**

The subset of the complex plane defined by {z : arg(z - z^1) + arg(z - z^2) = theta} can describe either a pair of hyperbolic arcs, a pair of rays or a mutually perpendicular line and line segment pair. Geometric and algebraic approaches to finding these subsets are presented. Quasi-general and specific examples are discussed in detail, the general case is examined and a general taxonomy is given.

Repeated as F50

SESSION DETAILS

SESSION B: 12:00pm - 1:00pm Thursday 4th December

BK1 Integrating Technology Through a Play Based Focus For Early Learners

Hanan Harrison - Aust National Schools Network (ANSN), QLD

Keynote **Years P - 3**

Participants will:

◊ Develop a philosophy of using technology in the classroom. to improve student learning outcomes, and

◊ Develop a knowledge set or repertoires of strategies to initiate technology integration for young learners.

***Hanan Harrison** is an ANSN Hub leader and state coordinator who has worked in the past with educational departments and universities in positions ranging from classroom teacher, curriculum advisor, university lecturer and critical friend. Her interest and focus over the past decade has been on pedagogy, assessment and innovative curriculum design. She is currently leading a number of action research circles and workshops with the ANSN nationally that support educators to design, implement and reflect on new initiatives and practices including technology integration for young learners, Dimensions of Learning, Habits of Mind and Protocol Training.*

BK2 Structuring Mathematical Thinking in the Primary Years

Jill Brown - Australian Catholic University

Keynote **Years 3 - 8**

Focussing on mathematical thinking, this keynote address will examine the 'content' dimension of Structure of VELS across Years 3-8. Specifically it will answer the questions:

◊ What is Structure?

◊ What does it look like in the classroom?

Some of the 'big ideas' and classroom tasks related to Structure will be presented. Practical applications of these ideas in the Contemporary Teaching and Learning of Mathematics Project with Years 3-6 students will be shared.

Jill Brown *taught mathematics in inner city state secondary schools for over two decades. Her interests include the use of electronic technologies to stimulate higher-order thinking in mathematics classrooms, including the consideration of real world problems via mathematical modelling. Her interest here in Technology-Rich Teaching and Learning Environments [TRTLE's] is focussed at both teaching and learning possibilities. She is also particularly interested in developing classrooms where all participants are part of a community of mathematical inquiry. The teaching and learning of structure in both the primary and secondary years is also an interest.*

BK3 Connected Mathematics Through Mathematical Modelling and Applications

Gloria Stillman - University of Melbourne

Keynote **Years 9 - 12**

Locating mathematical tasks in meaningful contexts is often claimed to be enriching for students as their mathematical experiences become connected to real life experiences. Such tasks are mathematical applications connecting classroom mathematics to the outside world. Mathematical modelling, on the other hand, connects from the outside world into the classroom.

Dr Gloria Stillman *is a senior lecturer in mathematics education at the University of Melbourne where she teaches in the primary and secondary teacher education programs. She has conducted extensive research in both Queensland and Victoria on the teaching and assessment of mathematical applications and mathematical modelling at the secondary school level. She is currently a member of the international executive committee of the International Community of Teachers of Mathematical Modelling and Applications (ICTMA) and is chair of the organising committee of the biennial conference, ICTMA15, to be held in Melbourne in 2011. She is currently involved in a collaborative research project which is looking at competencies for teaching modelling and applications.*

B4 Mathematics Intervention in the Early Years

Catherine Pearn - University of Melbourne

Lecture **Years P - 2**

A Mathematics Intervention program was established at Boroondara Park Primary School for children 'at risk' of not succeeding with Year 1 mathematics. The results of testing will be discussed along with common difficulties identified. The presentation will highlight those strategies used in the intervention program that can be modified for classroom teachers to incorporate into their mathematics program.

Repeated as C3

B5 Planning Practical Activities CONNECTED to Teaching Approaches

Donna Ludvigsen - Department of Education & Early Childhood Education (DEECD)

Naomi Sordello - Redan Primary School

Lecture **Years P - 4**

Donna Ludvigsen is a Senior Programs Officer for Numeracy; she joins with Naomi Sordello, a Maths Teaching

Learning Coach to explore practical whole class, teaching group and independent activities in the classroom. A range of materials (numberlines, arrow cards, etc) will be examined and demonstrated. A resource package will be provided.
Repeated as A3

B6 Focussed Games to Assist in Teaching the Four Processes
Sue Fine
Workshop **Years P - 4**
Within all classrooms there are students who feel uneasy about maths. Using rich lessons in the form of games and open-ended activities enables all students to enjoy learning and not feel threatened by their lack of confidence or ability in maths. This session will focus on quality maths games particularly in the areas of place value, addition, subtraction, multiplication and division to promote a love of maths. Games that match the learning focus of the lesson can also be used for assessment. The emphasis on this session is enjoyment for the participant, and also to take away easy to organise, useful activities that provide both entertaining and learning experiences for your students.
Repeated as E6

B7 It's Cool To Calculate
Peter Maher - Penleigh & Essendon Grammar
Workshop **Years P - 6**
This session will demonstrate the fact that the calculator is an invaluable adjunct to student learning. This highly entertaining, hands-on workshop will demonstrate, through a series of games and activities, the potential of the calculator to strengthen a student's concept attainment. The session will show that the calculator should be a regular part of any dynamic mathematics program.
Repeated as D9

B8 THIS WORKS FOR ME! Activities from Prime Number
Sue Gunningham - Sue Gunningham Consultancy Services P/L
Workshop **Years P - 6**
Prime Number is the MAV's journal for primary school teachers. Each edition contains ideas and activities contributed by teachers who have used them with success in their own classrooms. During this hands-on workshop participants will trial some of the activities from past editions of Prime Number.
Repeated as A4

B9 Flare Interactive Teaching Tools
Allan Turton - Origo Education
Gerard Tuffield - Origo Education
Workshop **Years P - 8**
Many interactive teaching tools suffer from an excess of some things and a deficit of others. Some software is easy to use, but lacks flexibility; some grab students' attention, but direct it away from the topic; and some may have everything you need, if only you knew what to do with it. The "Flare" series from Origo Education gets the balance right. Carefully written lesson notes are coupled with flexible software to help teachers focus on the maths, and reach students' at their level of understanding. With the ability to work on all interactive whiteboards (or even just a data projector and desktop computer), the first eight titles in this powerful new series are definitely worth seeing. (Commercial Presentation)
Not Repeated

B10 Crafting Learning Activities for Individual Students or a Whole Class
Tony Collison - School Software
Computer Lab **Years P - 8**
A hands-on demonstration that highlights the process of creating activities that cater for individual and group needs in mathematics and languages. The process is simple, flexible, time saving and allows for the incorporation of syllabus outcomes. The software allows you to develop an endless supply of quality resources. (Commercial Presentation)
Repeated as G11

B11 Multiplication, Meaning and Times Tables
Douglas Williams - Black Douglas Professional Education Services
Workshop **Years P - 10**
This workshop is a multiplication journey that begins with children first arranging objects in equal rows - an array model - and takes us through to the visualisation of abstract algebraic formulas. It explores activities which use concrete objects, semi-concrete representation such as graph paper and virtual representation through software, to simultaneously develop meaning in multiplication and facility with times tables. Although there will be activities

for you to 'use tomorrow', the session will also stimulate thought about planning the multiplication journey through the school so that more students are more successful at multiplication matters.
Not Repeated

B12 Pre-service Mathematics Education: Expectations of Expert and Novice - What Connections are Made?
Judith Falle - University of New England, NSW
Naomi Pask - University of Melbourne
Lecture **Years P - 10**
Lecturers (experts) have particular ideas of what their students (novices) need to know in order to be prepared for teaching (mathematics). These might, or might not, be the same as those of their students. This presentation presents a reflective conversation that aims to discover where the connections between perspectives of novice and expert are made, and where they need to be made. The context will be that of preparation to teach mathematics, although underlying pedagogical issues will, of necessity, be discussed. There are also implications for professional development programs.
Repeated as A7

B13 Intervention, Extension, Revision and Assessment - Kinetic Education
Mary Sanghvi - Kinetic Education
Computer Lab **Years P - 12**
Hands-on computer workshop using the Maths Wiz (and English Wiz) computer programs developed here in Melbourne by Kinetic Education. Mary is a keen believer in using technology to take the boredom out of mundane learning tasks and thus inspire interest, instead of apathy. (Commercial Presentation)
Repeated as A9

B14 Making the Connection: Helping Struggling Students Achieve
Anita Chin - Origo Education
Workshop **Years 1 - 6**
Identifying and understanding conceptual, and not just procedural, holes in students' thinking and communication skills enables us to implement more effective techniques for working with struggling mathematics students. This hands-on workshop will examine the purposeful use of key models for building connections between concrete, pictorial, verbal, and symbolic representations of number concepts. Strategies to cater for all students in a mixed ability classroom will be discussed and practical ideas for implementation will be modelled.
Repeated as E10

B15 Te Poutama Tau - The Numeracy Project for Māori
Elaine Dyason - Massey University College of Education, New Zealand
Ros Bartosh - Massey University College of Education, New Zealand
Workshop **Years 1 - 8**
Te Poutama Tau is a pathway for learning maths in Māori Medium classes and schools nation-wide in New Zealand. This workshop will examine aspects of the history, implementation and implications for teaching and learning.
Repeated as D13

B16 Hands-on Fractions
Peggy Ashton - Education Consultant
Jenny Vincent - Education Consultant/Author
Workshop **Years 2 - 6**
This workshop will explore fractions through hands-on activities. The focus will be on supporting student understandings through the use of appropriate models. Activities are designed to stimulate discussion enabling students to clarify fraction concepts. A CD of activities will be provided.
Repeated as A12

B17 24 Challenge - Activate Your Whole School Community in the Mastery of Maths
Amanda Cousins - Brainy Days
Helen Toon - Teaching & Learning Coach Forest Hill College
Lecture **Years 3 - 8**
The 24 Challenge was held for the first time this year in the Melbourne Metropolitan area, involving students from 1000 schools. The Tournament was the pinnacle of a terms work in raising the level of maths proficiency in all students from Years 3 to 8. A critical benefit of using the 24 Game is the development of "multiplicative thinking", the ability to work flexibly with the concepts of multiplication and division in a wide range of contexts. Find out how you can use the 24 challenge in your classroom as a tool to build numerical fluency in a fun and engaging way and achieve a real focus on maths within your school community.
Repeated as C16

B18 The In and Outs of Mathematics Problems

Nick Connolly - Educational Assessment Australia, NSW

Lecture **Years 3 - 11**

Using mathematics problems to stretch, educate and assess students' mathematical ability is a strategy in maths education that is thousands of years old. This session will look at the history and technique of crafting effective maths problems.

Repeated as A17

B19 Teaching While You Are Sleeping: Providing 24/7 Learning Support

Alan Thwaites - Kambrya College

Lecture **Years 4 - 12**

A student is at home trying their hardest to get through the mathematics problems their teacher has set, but they are stuck. The explanations in the text do not help and there is no one at home who can help them. Do you feel their frustration? This session looks at how mathematics teachers at Kambrya College use Interactive Whiteboards to create learning artefacts, many of which are made during class time, to provide learning support for students. By posting these IWB products to Wikis and Blogs students have 24/7 access to support materials that are specific to their learning needs in mathematics.

Repeated as A20

B20 Understanding Spatial Data - Mathematics and Geography Combine

Pat Beeson - Australian Bureau of Statistics

Lecture **Years 4 - 12**

How could maths and geography combine to create a better understanding? The presentation will illustrate how postcode data fed into a GIS system, became more meaningful with input from the maths department. It will go on to discover what is meant by spatial data, where to access it and how it may be integrated into the Spatial Technology in Schools Competition.

Repeated as E17

B21 'Shake Rattle and Roll' Out the Maths with Box Car Games

Fiona Affleck - EdSource, WA

Miranda Milaszewicz - Chatham Primary School

Workshop **Years 5 - 7**

Come prepared to play and be amazed at the teaching learning and assessment opportunities created with Box Cars game pedagogy. Box Car games develop mathematical skills and concepts, creating a fun motivational approach to the teaching of maths with no teacher preparation time needed. Following this workshop your students will love playing operation, place value, pre-algebra and decimal games in the classroom using simple cards and dice equipment. (Commercial Presentation)

Repeated as A21

B22 Fractions of Pattern Blocks

Leonie Anstey - Department of Education & Early Childhood Education (DEECD)- Gippsland Region

Workshop **Years 5 - 8**

The use of pattern blocks for exploring equivalent fractions and the links to geometry will be explored in this session. We will explore open ended tasks around the key concepts in number and geometry.

Repeated as C22

B23 Comparing the Effectiveness of Implicit and Explicit Teaching of Values in Mathematics Education

Penelope Kalogeropoulos - Monash University

Workshop **Years 5 - 8**

Values teaching through mathematics lessons is not often emphasised. While the current Victoria school curriculum statements highlight the importance of values teaching through school subjects, they do not appear to explicitly propose how this may be facilitated. This session will explore the effectiveness of values teaching in primary mathematics classrooms.

Not Repeated

B24 Mathematical Investigations Using Robots

Sue Inness - Moore Educational

Workshop **Years 5 - 8**

Inherent in robotic programming is the relationship between the robots sensors providing feedback and the mathematical structures that give the programmer the tools to accurately control their robot. We will use mathematical investigations related to degrees, distance, thresholds, even Excel spreadsheet formulas and the geometry of the LEGO robot's movement to program our robot to solve robotics challenges related to environment

and sustainability. Students with an "I can't do Math's" attitude will happily do math's when it's hidden in robotics. (Commercial Presentation)
Notes: Session notes and activities can be downloaded from http://www.techxellenttraining.com.au/Conference%20Papers.html
Not Repeated

B25 Interactive Whiteboards in the Mathematics Classroom
Lauren O'Grady - Edsoft Pty Ltd
Lecture **Years 5 - 9**
Do you currently have an interactive whiteboard? Or are you looking for interactive whiteboard solutions for your school? Interactive whiteboards are becoming a 'must have' in education but are they purchased for the right reasons? In this session learn about how you can use interactive whiteboards in Mathematics to increase student engagement and achievement. (Commercial Presentation)
Repeated as F23

B26 A Mean Approach Can Be a Problem: Looking for Variation in Data
Max Stephens - University of Melbourne
Lecture **Years 5 - 12**
The mean value (average value) is one important feature of any data set, but looking only at the mean value can obscure attention to the important feature of variability. This session will provide practical and realistic examples to help students notice why it is important to see how data values are spread.
Repeated as E24

B27 Improving Numeracy Through Differentiating the Maths Curriculum
Nikki Boyce - Broadford Secondary College
Kerryn Sandford - Broadford Secondary College
Joanne Ganis - Broadford Secondary College
Lecture **Years 7 - 8**
In essence, we would like to present the work that we have been conducting through our Teacher Professional Leave project on improving numeracy through differentiating the curriculum and using the VELS as a planning guide. Over the past year, we have been trialling different models of differentiated curriculum in Year 7 and 8 maths classes and we believe that we have developed a sustainable and useful model for middle years mathematics. in particular, the ability to address specific numeracy issues as well as student agency and interest has been a highlight of the project. The planning model draws on the VELS as the curriculum organiser and we have made extensive use of the maths continuum as well as numerous other programs and research, such as the Scaffolding Numeracy in the Middle Years Project.
Repeated as A31

B28 Maths Peer Tutoring Program at Ivanhoe Girls' Grammar School
Angela Kotsiras - Ivanhoe Girls' Grammar School
Lecture **Years 7 - 9**
In this session participants will find out how a maths peer tutoring program was successfully implemented at Ivanhoe Girls' Grammar School. This weekly program allows Year 10-12 students who enjoy maths to tutor Year 7-9 students who need assistance with their maths.
Repeated as F30

B29 Bungee Jumping and The Leaning Tower of Poser
Denis Day - Glenvale School
Subra Muniandy - Glenvale School
Workshop **Years 7 - 10**
Two hands-on activities are presented in this workshop which are both fun and rich in mathematics. Participants will be involved in completing both tasks so that on their return to school can easily conduct them with their own classes.
Repeated as A37

B30 Using the Promethean Interactive Whiteboard in the Secondary Maths Classroom
Helen Burns - St Arnaud Secondary College
Jennifer Leishman - Donald High School
Workshop **Years 7 - 10**
Jenny and Helen have been collaborating and trialling new ways to present concepts, motivate students and provide interesting class activities using the Promethean Interactive Whiteboards. In our workshop, we will demonstrate a variety of successful flipcharts we have used in our classrooms. We will provide a CD to participants with the flipcharts we intend to demonstrate.

Repeated as E32

B31 Applications: Using Learned Concepts in Non-Routine Contexts

Mark O'Brien - Online Teachers' Resource Network

Lecture **Years 7 - 10**

The ability of students to solve non-routine contextual problems can clearly demonstrate their level of understanding of mathematical concepts they have learned. Apparent sources of these situations are simple science models, such as Ohm's Law and the Frequency/Wavelength relationship which relate to the concepts of inverse proportion and reciprocal functions. However, many other concepts require us to look further and deeper to create sound contextual situations to engage our students and allow them to demonstrate their understandings. This workshop will look at further applications of this type, developed for students from about Year 7 to 12. (Commercial Presentation)

Not Repeated

B32 3-2-1 Ignition

Jo Bradley - Mentone Grammar School
Paul Nugent - Mentone Grammar School

Workshop **Years 7 - 11**

This session details a framework for group practices, thinking routines and reflective actions all designed to facilitate thoughtful action around the notion of working Mathematically. The scope of this presentation looks at practices/ problem solving in Years 7-11.

Not Repeated

B33 Vodcasting Mathematics

David Phillips - Southwood Boys Grammar
Lynnette George - Southwood Boys Grammar

Workshop **Years 7 - 12**

The presenters demonstrate how to produce Vodcasts to enhance student learning either at school or home via the internet using YouTube. Participants will receive a CD with the necessary software and example Vodcasts including 'How to make a Vodcast'.

Notes: Please bring your laptop fully charged (and a microphone).

Repeated as H24

B34 Maths in Sport

Ian Lowe - The Mathematical Association of Victoria

Workshop **Years 7 - 12**

The National Sports Museum, at the MCG, now has a maths trail written by MAV. It is linked to pre-visit activities and post-visit projects. This presentation will provide details. It will provide ideas for motivating classroom and out-of-class projects and investigations related to a number of sports, and will be of value to teachers who are unable to take a class of secondary students to the MCG for the NSM visit.

Repeated as F35

B35 Introduction to TI-Nspire CAS

Rodney Anderson - Moreton Bay College, QLD

Workshop **Years 7 - 12**

In this session, we will explore the TI-Nspire CAS calculator. What can it do? How can it be used in my classroom? This session will offer you a basic tour of the calculator and help you get started in developing files that can be used in your classroom. TI-Nspire calculators will be provided for you to use.

Notes: TI-Nspire calculators will be provided for you to use. Bring your own TI-Nspire (and USB) to collect files.

Not Repeated

B36 Geogebra - Exploring Geometry

Theresa Pagon - Jacaranda (John Wiley & Sons)
Cameron Hallowell - Jacaranda (John Wiley & Sons)

Computer Lab **Years 7 - 12**

Geogebra is an open source (free application) which provides teachers and students with a software package for displaying and manipulating graphs and geometry objects. Powerful and easy to use, its dynamic nature makes it a great tool to explore mathematical concepts. This is an introductory session for teachers with little or no knowledge of Geogebra.

Repeated as G35

B37 Creating an e-activity Using the Casio ClassPad

Kevin McMenamin - The Peninsula School

Workshop **Years 8 - 11**

The in-built e-activity application on the ClassPad allows you to create pre-prepared tasks ready for students to use. This workshop will give you the opportunity to play with this feature of the CAS technology. You will begin to create your own task using a selection of the other built-in applications (eg. Geometry, Spreadsheets, Sequences, Graph and Table).

Notes: Loan calculators will be available at this session.

Not Repeated

B38 Arithmetika and Cheetah in Action

Tony Allan - RedBack Spider Publishing Pty Ltd, ACT

Computer Lab **Years 8 - 12**

Cheetah is a self-paced learning and self-assessment product for students to use at home. Arithmetika Test Designer is hundreds of ready made tests and thousands of question templates to make your own tests - for printing, with solutions automatically calculated. Arithmetika Assessment Manager is fully multi-user so the same tests are taken on a computer with all marking done for you. This workshop is an opportunity to review these three products. Each participant will receive a free 90 day license for their school. (Commercial Presentation)

Repeated as F39

B39 Sailing into Trigonometry

Anthony Harradine - Prince Alfred College, SA

Workshop **Years 9 - 10**

Combining pattern recognition, the context of sailing and geometry software we introduce Trigonometry in an engaging manner. Starting with application, we end with the formal structure of the trigonometric ratios. Take home a free 'chapter' you can use with your students.

Notes: BYO geometry or use geometry on a loan ClassPad.

Not Repeated

B40 Working Mathematically: Exciting New Classroom Resources for Teachers

Lloyd Dawe - Inaburra School, NSW

Monique Miotto - Mathematics Education Consultant for Macmillan Education

Workshop **Years 9 - 10**

Looking for some new interesting investigational resources to engage students? Extend those top students? This session will introduce you to some new photo-copyable lessons from the soon to be published Working Mathematically II by Lloyd Dawe. Since retiring as an Associate Professor of Mathematics Education at the University of Sydney, Lloyd has written resources, including Working Mathematically I for Years 7 and 8, and worked as a consultant to schools, supporting teachers in their efforts to engage students in higher order mathematically thinking. The session this year will include new topics such as finding the epicentre of an earthquake, finding your latitude at the Equinox, exploring the Platonic geometry of the Fluorite Crystal and much more. Technology is utilised as appropriate to facilitate learning. Teacher notes and full solutions are provided. (Commercial Presentation)

Notes: A graphics calculator will be useful.

Repeated as A44

B41 The Use of the Casio ClassPad 300 at Year 10

Mark Nesbitt - Rutherglen High School

Greg Barras - Rutherglen High School

Workshop **Years 9 - 11**

The session will be based around how to use the Casio ClassPad 300 in a Year 10 program. There will be opportunities to use the ClassPad in this session as well as discuss Rutherglen High School's (Pilot Maths Methods CAS School) introduction of a CAS system.

Repeated as G43

B42 Dynamic Geometry with Geometers Sketchpad Version 4

Bozenna Graham - Wesley College

Computer Lab **Years 9 - 12**

The session will be designed as a hands-on workshop. Several Sketchpad activities will be presented for students in Years 9-12. It is expected that participants will have some familiarity with dynamic geometry software.

Notes: Please bring a flash drive to copy Sketchpad files and worksheets.

Not Repeated

B43 Investigating "What If" Questions: Teaching Mathematics with Dynamic Interactive Documents
Alper Ciftci - Isik College

Lecture **Years 10 - 12**

Nowadays teaching mathematics requires linking multiple representations. Each recent technology that we plan to integrate in our teaching has certain promises. How can we utilise them in the most efficient way to ensure that our class documents gain full interactivity. A range of examples from different software packages will be discussed with their best practice and limitations. A special focus on Maple, Mathematica, ClassPad, TI-Nspire will be given among other software packages as well.

Repeated as D42

B44 Introducing the ClassPad to Students on a Pathway to Maths Methods CAS
Cathy Devlyn - Penleigh & Essendon Grammar School
Len Hannah - Penleigh & Essendon Grammar School

Lecture **Years 10 - 12**

This session provides useful tips and resources to assist with getting started with the Casio ClassPad. The presenters will share ideas for developing student worksheets and designing CAS-active assessments with a particular emphasis on Unit 1 and 2 Maths Methods CAS.

Notes: Please bring along a Casio ClassPad if you have one - limited numbers will be available for loan on the day.

Not Repeated

B45 *n*spire CAS Software - A Gem of a Program
Neale Woods - Distance Education Centre Victoria

Computer Lab **Years 10 - 12**

In the rush to learn to use CAS calculators, the simple beauty of the *n*spire CAS software has often been overlooked. The software is an amalgamation of CAS, graphs, geometry, lists, spreadsheets and data collection; all packaged in an easy-to-use, beautifully constructed program. Participants will have a hands-on opportunity to trial *n*spire CAS software.

Not Repeated

B46 Univariate and Bivariate Statistics Calculations Using the TI-89 (CAS Calculator)
Stuart Payne - Bendigo Senior Secondary College
Suzanne Janssen - Bendigo Senior Secondary College

Workshop **Years 10 - 12**

With the introduction of CAS into the VCE curriculum, more and more students with CAS calculators need to perform statistics calculations for both Univariate and Bivariate data. This option is a workshop that will show you how to use the TI-89 CAS calculator to do all the different types of statistical calculations needed – from calculating the mean through to residual plots and transforming data. I am hopeful that TI-89s can be supplied but bring your TI-89 just in case. Sorry - no other type of CAS calculator is supported for this workshop.

Notes: TI-89 calculators may be supplied but bring your own TI-89 just in case.

Repeated as A49

B47 Maths Methods (CAS) - Additional Content in the CAS Course
Frank Moya - Frankston High School

Workshop **Years 11 - 12**

This hands-on workshop is aimed at teachers who are new to the teaching of Maths Methods (CAS) Units 1 and 2 or 3 and 4. Participants will be introduced to the use of the CAS device to assist with the teaching and learning of the content that is prescribed for the CAS course only. This will include the use of transition matrices in Markov chains, the use of matrices in transformations and in systems of equations, average value of a function, functional equations and the general solution of trigonometric equations. The TI-Nspire CAS handheld will be used. However, the content of the workshop is suitable for teachers who use other CAS platforms in their schools.

Repeated as H37

B48 Teaching Calculus in an Integrated Way!
Russell Brown - Educational Consultant

Computer Lab **Years 11 - 12**

This session will use the fully integrated computer software TI-Nspire CAS to explore the topic of calculus that would be suitable for either student assessment tasks or for teaching demonstrations to the whole class. All tasks done using the software can be seamlessly transferred to the TI-Nspire CAS handheld if desired. You will learn how to bring the dynamic geometry, graphing and CAS capabilities together to investigate maxima-minima, gradient graphing and moving from specific to generalised cases. No previous experience in using TI-Nspire CAS is required for this session.

Not Repeated

B49 Mathematical Methods CAS Examination 2

Allason McNamara - Mount Scopus Memorial College

Lecture **Years 12 - 12**

Allason is the Chief Assessor for Mathematical Methods CAS Examination 2. Common errors which were made on the 2008 examination will be discussed in detail as well as the approach to be taken in 2009.

Not Repeated

B50 How Much Further?

Andrew Stewart - Presbyterian Ladies' College

Lecture **Years 12 - 12**

The involvement of technology in Further Mathematics has changed not only what we teach, but how we teach and assess. An experienced Further Mathematics teacher will review the technologies that have helped (or hindered) this subject and speculate on future developments.

Repeated as H39

B51 VCE Mathematical Methods, Examination 2

Bruce Henry - Australian Maths Trust

Mary Papp - University High School

Lecture **Years 12 - 12**

Examination 2 for Mathematical Methods 3/4 will be discussed. Discussion will include common student errors, commonly lost marks and student misconceptions.

Repeated as H40

B52 Unification of Domains in Probability Distribution Chart

Mohammed Mall - Stotts College

Lecture **Years 12 - 12**

Unifying the domains such as x (data value), z (standardised value) and p (probability) in a single chart and calculating their relations.

Repeated as D50

SESSION DETAILS

SESSION C: 2:00pm - 3:00pm Thursday 4th December

CK1 Chance Connections

Jennifer Way - University of Sydney, NSW

Keynote **Years P - 8**

A research-based framework for the development of probability concepts and reasoning which can guide assessment and teaching will be presented. Three contexts for learning experiences (social, experimental and theoretical) connect with real life, technology and other areas of mathematics in different ways, and together can provide comprehensive opportunities for developing understanding.

***Dr Jennifer Way** is a senior lecturer in primary mathematics education at the University of Sydney. Her research interests include the development of probability concepts, the design of digital learning objects and the engagement and motivation of middle years students.*

CK2 Digital Content: Connecting Kids (Secondary)

Sue Ferguson - The Learning Federation
Leanne Robertson - The Learning Federation

Keynote **Years 7 - 12**

Kids have grown up in a digital world. Learning in mathematics, and in other subjects, needs to incorporate digital experiences to connect with students. The Le@rning Federation develops digital content, available free for all schools in Australia and New Zealand. This keynote will examine the decisions made in designing digital content to support mathematics learning and show some of the exciting learning objects about to be published. A teacher will demonstrate classroom use by running a mini lesson with a group of students using an interactive whiteboard. A DVD containing all mathematics and numeracy content published to date will be made available to participants.

Sue Ferguson *is the senior project officer for The Le@rning Federation (TLF). She has been an educational specialist and subject matter expert for TLF's mathematics/numeracy projects and was part of the research team examining the effect of TLF mathemtics/numeracy content on teacher pedadogy and student learning outcomes. Sue has taught mathematics in a number of secondary schools in Victoria.*

Leanne Robertson *is the Senior Manager: Learning Design for The Le@rning Federation (TLF). Leanne has taught in primary schools in New Zealand, UK and Australia. She has developed and delivered programs and resources for the Telecom Information Technology Roadshow in NZ. Her interest in ICT and resource development has continued through research projects and work on the creation of digital learning objects at TLF.*

C3 Mathematics Intervention in the Early Years

Catherine Pearn - University of Melbourne

Lecture **Years P - 2**

A Mathematics Intervention program was established at Boroondara Park Primary School for children 'at risk' of not succeeding with Year 1 mathematics. The results of testing will be discussed along with common difficulties identified. The presentation will highlight those strategies used in the intervention program that can be modified for classroom teachers to incorporate into their mathematics program.

Repeated as B4

C4 'Shuffle and Roll' Maths Games with Box Cars

Fiona Affleck - EdSource, WA
Miranda Milaszewicz - Chatham Primary School

Workshop **Years P - 4**

Come prepared to play and be amazed at the teaching, learning and assessment opportunities created with a Box Cars game pedagogy. Box Cars games develop mathematical skills and concepts, creating a fun motivating approach to the teaching of maths with no teacher preparation time. Following this fun, fast workshop your students will love playing number recognition, place value, graphing and operation games in the classroom using simple cards and dice equipment. (Commercial Presentation)

Repeated as D4

C5 Computation Games and Problem Solving Activities

Greg Butler - Camp Hill Primary School
Fiona Van Heuman - Camp Hill Primary School

Workshop **Years P - 4**

Using computation games kits as a basis for various games and problem solving activities to improve instant recall of number facts and computation skills. These games kits have been developed and trialled at the school to build problem solving strategies and an understanding of the workings of our number system.

Repeated as D5

C6 Maths on the Big Screen - Interactive Whiteboards Enhancing the Numeracy Session

Adria Quinn - Westbreen Primary School

Lecture **Years P - 6**

This session will show different ways that Interactive Whiteboards can be used to increase student engagement

and understanding in the primary maths classroom. With activities ranging from fractions and decimals to patterning and probability, this session will inspire you to explore the different uses and possibilities presented by Interactive Whiteboards.
Repeated as D7

C7 Nine and Over: Adventures in Place Value
Douglas Williams - Black Douglas Professional Education Services
Workshop **Years P - 6**
Place Value is far more than 'knowing hundreds, tens and ones'. Explore a range of rich, revisitable activities designed to continuously develop Place Value concepts and skills through the curriculum, rather than 'doing it' in a block for two or three weeks. This approach more closely reflects the evolution of the concept through mathematical history. It is more akin to the way mathematicians have learned to understand the concept. Hands-on activities and software will be a feature and the intention is that you find something you can 'use tomorrow' and be stimulated to rethink the Place Value journey across the school.
Not Repeated

C8 Structure: The Importance of Incorporating this Dimension Into Your Daily Program
Fotini Godeassi - Education Consultant
Rebecca Clark - Victoria University
Fiona Cavigan - Victoria University
Workshop **Years P - 6**
This workshop focuses on the importance of incorporating the dimension of structure into the daily program of mathematical experiences through examples developed for various levels (Years P-6). Participants will be provided with insights into students responses to trialled activities which demonstrate the key elements of structure as applied to concepts involving number, space, function, algebra and logic, through work samples and dialogue. As well there will be opportunity for hands-on investigation of selected tasks/materials.
Repeated as F7

C9 Implementing a Successful School Wide Working Mathematically Approach in a Primary School
Jennifer Bowden - The Mathematical Association Of Victoria
Workshop **Years P - 6**
This workshop will look at different platforms and ideas to implement school wide change through effective professional development. We will focus on a Working Mathematically approach to Mathematics and teachers ability to create fun filled lessons that challenge and interest students as well as assessment practices that are effective in long term planning.
Repeated as D8

C10 Maths Talent Quest - Working Mathematically
Robyn Crockett - Camberwell Grammar School
June Penney - Darley Primary School
Workshop **Years P - 9**
Would you like to hear students say "Fantastic! We've got double Maths!" Would you like students to do extra maths work? This session is for you! Find out what Maths Talent Quest is, why kids love it and how to run it in your school.
Not Repeated

C11 Improving Student Engagement and Results Through e-learning
Julie Thompson - 3P Learning/Mathletics
Brendan Colley - 3P Learning/Mathletics
Claire O'Connor - 3P Learning/Mathletics
Computer Lab **Years P - 12**
Mathletics is Australia's leading online mathematics learning resource. Student engagement, improved results and up to the second formative data are the cornerstones to Mathletic's success. See why over 3000 schools and 1 million students are using Mathletics. This is a practical demonstration of the resource. (Commercial Presentation)
Repeated as A8

C12 From Built or Captured Images to Interactive Whiteboard Mathematics
Michael Quinn
Workshop **Years 1 - 6**
Health and physical activity dimensions in VELS or any primary curriculum provide a rich interest base for building numeracy and literacy classroom lessons and activities. Images built or captured move easily from word processor to spreadsheet to graphic organiser, to pdf display and to interactive whiteboard elements and lesson focus components. Participants will have the opportunity to build their own interactive mathematics displays.

Notes: Participants should bring a laptop; have access to a word processor, spreadsheet and acrobat (and be able to load files from CD or flash card).
Not Repeated

C13 Children Making Mathematical Connections Through Solving Their Own Problems
Chris Hurst - Curtin University of Technology, WA
Workshop **Years 1 - 10**
This session looks at how children can be motivated towards learning mathematics through solving problems that they have posed in contrast to being asked to solve problems and complete 'artificial' or meaningless tasks in which they have no particular interest. This will be done through a brief presentation followed by a workshop session. The presentation section uses examples from two successful courses titled 'Connecting Maths' conducted with Year 1-10 teachers through which students and their teachers developed a problem based project based on the students' interests. Mathematical investigations were then conducted over a period of 10-12 weeks to solve the problems that the students had posed. The workshop part of the session is designed to help participants set up similar problem based projects with their own classes.
Repeated as H11

C14 Mental Computation and Number (Teaching Effectively Using Games and Activities)
Linda Baron - Chirnside Park Primary School
Mary Burns - Chirnside Park Primary School
Workshop **Years 2 - 6**
This seminar will add depth to teacher's repertoires by exploring a variety of games, activities, ideas and insights. These can be used effectively in the classroom to support different abilities and needs of a range of students and puts the fun back into Mathematics. Ideas are easily adapted to different year levels and support VELS learning outcomes.
Repeated as D14

C15 Problem Solving Tasks and Activities for Primary School Children
Diane Foley - St Damian's Primary School
Workshop **Years 3 - 6**
This session will provide teachers with a range of Problem Solving tasks/activities for children. These tasks/activities can be used as the focus to a Maths lesson or as a spring board to a unit of work.
Repeated as D15

C16 24 Challenge - Activate Your Whole School Community in the Mastery of Maths
Amanda Cousins - Brainy Days
Helen Toon - Teaching & Learning Coach Forest Hill College
Lecture **Years 3 - 8**
The 24 Challenge was held for the first time this year in the Melbourne Metropolitan area, involving students from 1000 schools. The Tournament was the pinnacle of a terms work in raising the level of maths proficiency in all students from Years 3 to 8. A critical benefit of using the 24 Game is the development of "multiplicative thinking", the ability to work flexibly with the concepts of multiplication and division in a wide range of contexts. Find out how you can use the 24 challenge in your classroom as a tool to build numerical fluency in a fun and engaging way and achieve a real focus on maths within your school community.
Repeated as B17

C17 Maths on a Mat, and How You Might Amplify Mathematical Ideas with ICT
Matt Skoss - Department of Education & Early Childhood Education (DEECD), NT
Tony Richards - IT Made Simple
Workshop **Years 3 - 10**
What is the mat? It is a large piece of shade cloth (7.2 m x 3.6 m) with a 10 x 5 grid painted on it. Participants will engage in a range of activities from early childhood to Year 10, in the areas of coordinate geometry, algebra, transformational geometry and chance and data. A feature of most activities is the opportunity for strategic questioning by the teacher in-the-moment, probing student understanding of mathematics concepts. During this session, photos, movie clips and audio clips will be collected, and made into a digital artefact for participants to download at a later time. How to integrate ICT strategically into lessons will be modelled.
Not Repeated

C18 Integration of ICT with Middle Years Maths
Lyndon Regan - Anderson's Creek Primary School
Lecture **Years 5 - 6**
Presentation of Middle Years maths activities and assessment tasks that integrate ICT skills and resources; this will include lesson plans, resources and examples of student work. Integrated topics cover Natural Disasters, Marine

Species, Asia, Settlement, Gold Rush, Nutrition and Fitness. Maths topics include Chance and Data,Measurement, Number, Space and Working Mathematically. Activities use Microsoft software, free interactives and programs.
Not Repeated

C19 New Interactive Resources for Grades 5 and 6
Paul Negri - Highvale Secondary College
Alan Brookes - Highvale Secondary College
Computer Lab **Years 5 - 6**
Mathstrack is now developing a range of innovative and interactive maths resources suitable for students at Grade 5 and 6. A number of new resources will be shown in this session. Suggestions, comments and discussions will be welcomed. These resources (and others) will be made available for teachers to trial and evaluate from the start of 2009. (Commercial Presentation)
Repeated as G20

C20 EQUALS. The Mathematics of Balance
Rhonda Lyons - Warrnambool West Primary School
Workshop **Years 5 - 6**
Thinking about choices we make, it is good to give children the mathematics of input and output for eating and energy expenditure. This can go further into environmental studies. If we can include a simple way of counting our input and evaluating our output then we can all be more in control of our choices.
Notes: Flashdrive for copy of notes if required. Laptop optional.
Repeated as E18

C21 Using Diagrams In Problem Solving: Understand The Problem, Simplify The Solution
George Booker - Griffith University, QLD
Workshop **Years 5 - 8**
Developing problem solving is as much dependent on spatial thinking as on the more apparent facility with computation and measurement. Using diagrams to encapsulate information or depict the various possibilities are powerful tools in coming to terms with underlying questions and provide insight into ways to proceed to a solution.
Notes: Please bring a simple 4 function calculator to this session
Repeated as E19

C22 Fractions of Pattern Blocks
Leonie Anstey - Department of Education & Early Childhood Education (DEECD) - Gippsland Region
Workshop **Years 5 - 8**
The use of pattern blocks for exploring equivalent fractions and the links to geometry will be explored in this session. We will explore open ended tasks around the key concepts in number and geometry.
Repeated as B22

C23 'Higher, Faster, Stronger' Inquiry-based Cluster Maths Project Using the Olympics
Miranda Price - Chatham Primary School
Nancy Prince - Surrey Hills Primary School
Workshop **Years 5 - 8**
Cluster Maths Project designed and delivered by the Primary and Secondary Schools in the area. An inquiry-based project centered around the Olympics. It covers all aspects of VELS Maths for Level 4 and 5. We will share the project and our experiences with presenting to the students.
Repeated as H16

C24 Murder and Mayhem - Mathematical Investigations Using Medieval Siege Engines
Sue Inness - TechXellent Training Solutions
Workshop **Years 5 - 8**
Tap into your students fascination with all things disgusting and destructive in this maths investigation and application. The topic of Medieval Siege weapons provides a perfect forum for demonstrating the use and application of some basic engineering systems and measurable physics concepts in a historical context that is as disgusting as it is interesting and engaging. Medieval siege weapons performed according to the various rules of physics and applied basic systems at various levels of efficacy to destroy, kill and maim. This made the best weapons both predictable, accurate and lethal. Come along and see if you would survive in Medieval times by applying your physics and math's skills to build a better siege engine using LEGO and miscellaneous materials. (Commercial Presentation)
Notes: Session notes and activities can be downloaded from http://www.techxellenttraining.com.au/Conference%20Papers.html
Not Repeated

C25 Worksheets (Spreadsheets) to Use Tomorrow

Ken Walker - Matthew Flinders Girls' Secondary College
John Howes - Matthew Flinders Girls' Secondary College
Casey McGarigle - Matthew Flinders Girls' Secondary College

Computer Lab **Years 5 - 10**

If you want materials that interest students, self correct and cover lots of different topics come along. We will give you spreadsheets that you can use next lesson and show you how to make your own. You only need a desire to end some of that 'last lesson boredom' and some basic spreadsheet knowledge.
Notes: Bring a USB key to take home files to use next lesson.
Repeated as D21

C26 Mathematical Problem Solving - A New Paradigm

Tin Lam Toh - National Institute of Education, Nanyang Technological University, Singapore

Lecture **Years 5 - 10**

This session features a new paradigm to mathematical problem solving. While the model underpinning this approach stems from Polya's well-known mathematical problem solving, suggestions are made on how the problem solving processes become the key focus in mathematical problem solving in itself. Samples of 'practical worksheets' used in the Singapore secondary school classrooms will be shown.
Repeated as H19

C27 Hands-on Ratio and Proportion

Ian Lowe - The Mathematical Association of Victoria

Workshop **Years 5 - 12**

The topic of ratio and proportion (VELS 4, 5 and 6) is one of the most practical in everyday life. Ian's units of learning material for this topic combine lesson plans with cards for instructions for hands-on investigations. The approach will appeal to teachers of maths with science teaching background.
Repeated as D23

C28 CensusAtSchool - A Great Resource for Statistics or Problem Solving

Ian Wong - Australian Bureau of Statistics

Lecture **Years 5 - 12**

Take a good look at how students can be engaged by real, up to date, Australian raw data. You'll see the CensusAtSchool questionnaire and how your students can get the raw data. See examples of the ways students can use the data in Excel. CensusAtSchool can be used from upper primary through to VCE. Students love using data that is about themselves - you'll be surprised at the wide range of applications the data has. This workshop is ideal for those who know nothing or a little about CensusAtSchool or using data in the classroom.
Not Repeated

C29 Fractions: What's Worth Learning?

Robert Money

Workshop **Years 6 - 8**

What does 'understanding fractions' really mean? How does work with fractions link to broader understandings about number? What options are open to teachers in how they approach this topic? Discussion in this workshop aims to produce answers to these questions.
Not Repeated

C30 The Pluses and Minuses of Teaching Integers

Trevor Saunders - Massey University College of Education, New Zealand
Anna Satherley - Massey University College of Education, New Zealand

Workshop **Years 6 - 8**

This workshop will explore the common difficulties encountered when teaching integers. It will look at teaching integers in context using a range of resources. It will also examine how to extend students understanding of integers through exploration.
Repeated as D25

C31 Exploring Algebraic Thinking

Deborah Gibbs - Massey University College of Education, New Zealand

Workshop **Years 6 - 9**

This session will define Relational thinking and provide some practical activities to develop algebraic thinking for teachers and students. The session requires participants to be actively involved in the activities and discussions around difficulties students may experience in algebra.
Repeated as D26

C32 Patterns in Mathematics

David Perry - Camberwell Grammar School

Lecture **Years 7 - 10**

When you cut a piece of toast n times can you find a pattern for the number of pieces you obtain? When a number of teams play a round robin, can you use patterns to organise the competition? These and other situations will be investigated, using both algebra and geometry.

Repeated as D30

C33 Air Rockets

Denis Day - Glenvale School

Subra Muniandy - Glenvale School

Workshop **Years 7 - 10**

This is a great activity to engage students in some relevant and fun maths. Come along and find out how to build the launcher and the rockets. The rockets will then be launched and some of the maths involved will be discussed. This activity is rich in mathematics and can be used over a wide range of ability levels.

Repeated as D31

C34 Thinking About CAS and VELS

Peter Fox - Elisabeth Murdoch College

Workshop **Years 7 - 10**

How do I prepare students in Years 7-10 for CAS and how does this fit within the VELS? Participants in this session will work through a series of challenging problems that focus on good problem solving and thinking rather than algorithms and processes. “Students use irrational numbers such as, pi and common surds in calculations in both exact and approximate form... they use technology to carry out symbolic manipulation... use geometry software”. All these components of VELS can be incorporated in a single question when the technology is incorporated in an appropriate way.

Notes: Participants will be provided with access to a TI-Nspire CAS calculator to use in the session that contains files being used in the workshop. Participants are welcome to bring their own CAS calculator if they would like a copy of the files.

Not Repeated

C35 Critical Thinking in the 7-10 Mathematics Classroom

Rosetta Batsakis - Wesley College

Workshop **Years 7 - 10**

The mathematics textbook for many years has been the sole method for ‘teaching’ Mathematics. Students are often bewildered when presented with a problem that ‘doesn’t look like anything from the textbook’. This workshop aims to provide teachers with strategies that will enable students to critically assess what they are learning, their approach to their learning and how to then use those critical thinking skills to empower their learning.

Not Repeated

C36 Camtasia Fantasia

Neale Woods - Distance Education Centre Victoria

Computer Lab **Years 7 - 12**

Camtasia software is a simple-to-use, animated screen capture program. The user can record both sound and screen animations to produce terrific instructional material. Why write a series of instructions on paper when you can simply record your screens, menus and mouse movements and let your students replay them? Participants will have a hands-on opportunity to trial this exciting software.

Not Repeated

C37 A Beginners Guide to Programming on the TI-Nspire CAS

Stephen Arnold - Compass Learning Technologies, NSW

Workshop **Years 7 - 12**

Are there things you would like to do with TI-Nspire that are currently not available? Using the powerful programming features of this wonderful learning tool, teachers and students can create and design new capabilities and add a whole new dimension to the mathematics learning experience. This hands-on workshop introduces programming and is suitable for beginners.

Notes: Bring along your own TI-Nspire CAS handheld or laptop with TI-Nspire software installed, or use a device supplied at the workshop.

Repeated as D35

C38 Mathematics in Te Reo Māori - Who Needs English?

Brian Tweed - Massey University College of Education, New Zealand

Workshop **Years 8 - 10**

This option will explore the unique features of Te Reo Māori, the Māori language, that make it especially powerful for the learning of Mathematics. Problems involved in learning in English suggest the need to eliminate English as a 'support' language for learning mathematics in Māori. Examples of possible activities and teaching practice will be described along with possible future directions for Mathematics education in Māori medium settings. There will be 'hands-on' activities and there is no need to know anything about Te Reo Māori!

Notes: Please note that although the option is about the Māori language and the presenter is a fluent speaker, it will be delivered in English and everything will be accessible for the non speaker of Māori.(There will be some learning of Māori words and syntax by participants though)

Repeated as H25

C39 How Should We Teach About the Mathematics of Gambling? A Discussion

Donald Smith - Victoria University

Workshop **Years 8 - 10**

Gambling awareness is important, but teaching it has pitfalls. Together we discuss problematic teaching examples, and appropriate teaching elements, considering e.g. use of real gambling games, how likelihoods differ from payment odds, how game structure sets expected rate of loss, ensuring the key lessons are learned, rather than the fun of gambling. Relates to option "Effective Secondary Teaching About the Mathematics of Gambling".

Not Repeated

C40 The New Zealand Secondary Numeracy Project: What Have We Learned?

Jim Hogan - University of Waikato, New Zealand

Lecture **Years 8 - 11**

An overview of numeracy in SNP with supporting data and observations based on five years of managing projects in secondary schools in Waikato and the Bay of Plenty regions. What is important? What have we learned? Where are we going? You can look up references for this presentation at www.nzmaths.co.nz "Findings from the Secondary Numeracy Project 2007" and the 2006 evaluation is available at www.nzmaths.co.nz/numeracy/index.aspx.

Not Repeated

C41 Investigating Mathematically

Jeff Trevaskis - Mooroopna Secondary College
Warren Snow - Mooroopna Secondary College

Workshop **Years 9 - 10**

A session that will introduce simple investigation skills leading up to investigations of more complexity.

Repeated as D36

C42 The TI-Nspire in Years 9 and 10

Glenda Gerrard - Taylors Lakes Secondary College
Judy Taylor - Taylors Lakes Secondary College

Lecture **Years 9 - 10**

In 2007 and 2008 I have introduced students in Years 9 and 10 to the TI-Nspire. Hear about this experience from both a student and teacher perspective. We'll bring the calculators. Come and try out a few activities!

Repeated as D39

C43 Be N-spired

Neville Windsor - Hellyer College, TAS

Workshop **Years 9 - 12**

This will be a hands-on introductory session on the new TI-Nspire. Prior experience is not expected.

Repeated as D41

C44 The Casio ClassPad CAS Calculator for Beginners

Shirly Griffith - Jacaranda (John Wiley & Sons)
Greg Barras - Rutherglen Secondary College

Workshop **Years 9 - 12**

This workshop is for the novice user of the Casio ClassPad. It will provide participants with a step-by-step guide to using the ClassPad effectively in classrooms. (Commercial presentation).

Notes: Participants may bring their own ClassPad. Alternatively, one will be provided.

Not Repeated

C45 Linking Linear Functions and Measurement: Investigating Using CAS

Roger Wander - University of Melbourne

Lecture **Years 10 - 11**

In this session, participants will be introduced to a unit of work which enables a wide range of CAS functionality to be used over a series of 6 (assuming 80 minutes' duration) sequential lessons. The algebraic and geometric properties of sketch graphs of linear functions are used to explore the area of triangular regions formed in the coordinate plane by these graphs and the axis. All VELS dimensions are addressed, out-of-class work tasks encourage exploration, and the accumulated knowledge and skills are applied to a design problem suitable for either individual or group work as an assessment task.

Notes: Participants should bring a CAS calculator to the session OR a parallel computer product on a fully-charged laptop. The demonstration will be done using TI-Nspire CAS Computer Software and Geometer's Sketchpad software; participants will be able to access e-files of all associated paperwork, including a version with TI-89 Titanium screen dumps after the session.

Repeated as A48

C46 Two Terrific Technologies

Geoff Phillips - Geoff Phillips Publications

Lecture **Years 10 - 12**

Teacher and author Geoff Phillips will take participants on a tour of his two favourite mathematics technologies - the quick, slick ClassPad 330 / ClassPad Manager emulator and the powerful graph plotting and desktop publishing program, Graphe Easy. Geoff will explain why, in his opinion, both of these technologies are superior to their competition. There will also be the opportunity to ask "How do I..." questions about the technology. (Commercial Presentation)

Repeated as D44

C47 Why Do We Only Look at Half the Cubics?

Roderick McLean - Taylors College

Lecture **Years 11 - 11**

How many different types of cubic function graphs are there? This session looks at the 3 (6?) types, shows how the general cubic can be represented as a combination of transformations of the simplest versions of these, and gives a rule (confirmed by Calculus) for determining which graph. Also includes an investigative student assignment with solution. May include demonstration of the 'Cubic Formula' - the method for solving the general cubic equation.

Notes: Participants are advised to bring a graphics calculator.

Not Repeated

C48 Using the Casio ClassPad CAS in Year 11 and 12 Application Tasks

Gael McLeod - Glen Waverley Secondary College

Workshop **Years 11 - 12**

This presentation will demonstrate the various calculator skills required in a Mathematical Methods CAS course that are necessary to undertake application tasks, both at Year 11 and 12. Examples of application tasks will be given and the opportunity to work through some calculator functions will be available. Some knowledge of the Casio ClassPad would be useful though this is not a prerequisite. As we use the Casio ClassPad at GWSC, this is the calculator that will be used. This is not a commercial presentation.

Repeated as F46

C49 Writing a Math Methods 3 and 4 Application Task

Trevor Carter - Camberwell Grammar School

Workshop **Years 11 - 12**

This session will take you through the process of writing a Math Methods application task, relating personal experiences and providing an example for people to follow. Participants will be encouraged to use the session to write their own task within the group. The session aim is to promote discussion about effective processes in writing Application Tasks and to make them interesting and relevant to their student body.

Notes: Please bring your graphics calculator and any of your own MM 3/4 tasks to share with the group.

Not Repeated

C50 Moving to the TI-Nspire CAS for General Mathematics and Further Mathematics Teachers

Russell Brown - Educational Consultant

Workshop **Years 11 - 12**

Moving from the TI-84Plus to the TI-Nspire CAS? Apart from the CAS capabilities the TI-Nspire CAS has full Data and Statistics functionality that is easy to use and is very intuitive for student use. In this hands-on session we will address many areas of the FM core and also some topics from the options. This will be aimed at the introductory level user with detailed instructions on how to construct univariate and bivariate plots with meaningful axes labelling, find correlation coefficients and regression lines and also look at finance calculations using TVM Solver.

Notes: Loan calculators will be available if required.
Repeated as D49

SESSION DETAILS

SESSION D: 3:15pm - 4:15pm Thursday 4th December

DK1 Digital Learning + Mathematics = Innovative Engagement: Connecting Mathematical Thinking with Rich Assessment

Mark Hennessy - Presbyterian Ladies' College

Keynote **Years P - 6**

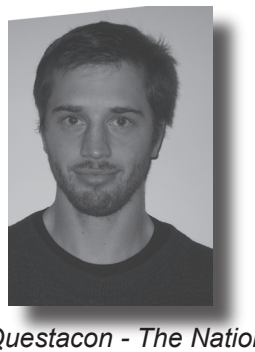
A range of student engaged digital mathematics learning objects is investigated and showcased. The rich-tasks: (Web based resources, Activities created in mathematically-able computer software, Learning Federation digital objects) are linked to a mathematics electronic portfolio created in simple, open-ended software. The ePortfolio is an exemplar diary of student mathematical engagement and illustrates the innovative use of simple ICT tools for creating a rich and highly illuminated assessment resource - a resource that informs learning, mathematical growth and development and celebrates every measure of success. Features of the Mathematical Assessment Portfolio:

- ◊ Showcases students' engagement in the mathematics
- ◊ Allows students to articulate mathematical thinking/understanding
- ◊ Creates a growing digital resource-bank of mathematical exploration
- ◊ Informs teacher assessment and can be sent home to inform parents as often as required
- ◊ Requires students to give approximate time duration spent on the task(s)

IMPORTANT: This session does not promote a commercial resource. The resource/repertoire has been specially designed for use in an authentic learning/teaching environment and is showcased for this presentation as a benchmark exemplar of a simple resource that can be designed/created by teachers for learners on all computers.

Mark Hennessy *currently works as the ICT teacher and coordinator at Presbyterian Ladies' College Junior School, Melbourne. An enthusiast for engaged, creative and interactive learning, he has a broad repertoire of educational experience and is most happy when involved in scenarios of invention with learners. He is an author of mathematics and ICT education publications, curriculum and eLearning material and has a fervor for enriching mathematical understanding with ICT. An aficionado of lateral expression, creative process and communication through the visual image, Mark's current idée fixe is an exploration of the power of the metaphor as a tool for articulating and communicating knowledge and ideas.*

DK2 Conundrums, Catapults, Custard Pies and Maths Teachers



Jamos Somerville-McAlester - Questacon - The National Science and Technology Centre, ACT

Keynote **Years 5 - 8**

Maths is not about numbers. It's wet, gooey, intriguing stuff. Over the past 15 years Questacon - The National Science and Technology Centre has been travelling Australia spreading the good word of Maths by using hands-on mathematical tasks and shows. Now, we want to share the how and why of what we do and why we do it.

Jamos Somerville-McAlester *- Having become a fully fledged biochemist, Jamos decided that as captivating as the science was, working in a lab wasn't really the place for him. Whilst studying for a Masters in Science Communication at the Australian National University, he began working at Questacon - Australia's National Science and Technology Centre - travelling around Australia helping people to generate an interest in exploring maths ideas. Doing this made him explore bits of maths that they tend not to teach you at school, but sounded interesting; made*

him figure out how to make maths more accessible to people who don't have the time to explore it; and generally play with maths. He hasn't looked back.

DK3 Pokie Jokie

Tim Falkiner

Keynote **Years 10 - 11**

In this presentation, I will explain how casino games work, and the two basic techniques of gaffing (rigging) them. I will also discuss the internal design and operation of Australian pokies and US reel slot machines and the ways they are gaffed. This material provides a fascinating, exciting and important way of teaching probability, from elementary notions up to subtler concepts of randomness, biased randomness and the "law of large numbers". It is also excellent material for teaching more general cognitive, mathematical and spatial skills.

***Tim Falkiner** is a Melbourne lawyer, formerly the Commercial/Legal Officer at the Victorian Casino Control Authority. Since 1996 Tim has been Chairman of Know the Odds Inc., a charity formed to use education to prevent problem gambling harm in Victoria. Tim is also a qualified town planner and his particular interest is control systems theory. Tim is co-author with the Canadian gaming machine expert Roger Horbay of the ground-breaking paper, "Unbalanced Reel Gaming Machines" which revealed cheating devices in reel gaming machines.*

D4 'Shuffle and Roll' Maths Games with Box Cars

Fiona Affleck - EdSource, WA
Miranda Milaszewicz - Chatham Primary School

Workshop **Years P - 4**

Come prepared to play and be amazed at the teaching, learning and assessment opportunities created with a Box Cars game pedagogy. Box Cars games develop mathematical skills and concepts, creating a fun motivating approach to the teaching of maths with no teacher preparation time. Following this fun, fast workshop your students will love playing number recognition, place value, graphing and operation games in the classroom using simple cards and dice equipment. (Commercial Presentation)

Repeated as C4

D5 Computation Games and Problem Solving Activities

Greg Butler - Camp Hill Primary School
Fiona Van Heuman - Camp Hill Primary School

Workshop **Years P - 4**

Using computation games kits as a basis for various games and problem solving activities to improve instant recall of number facts and computation skills. These games kits have been developed and trialled at the school to build problem solving strategies and an understanding of the workings of our number system.

Repeated as C5

D6 The How To and Where to With ICT and an IWB in EYN!

Helen Baldock - Baden Powell College
Tania Hunt - Baden Powell College
Lisa Conibeer - Cambridge Primary School

Computer Lab **Years P - 4**

You have an interactive whiteboard and/or computers in your classroom, plus students with a range of abilities - now what? This session will show you how to find and use free online purposeful numeracy activities that are designed to engage students by using ICT and the plethora of available internet resources. You will leave the session with a variety of activities and websites that are linked to VELS and the EYN Growth Points.

Repeated as F5

D7 Maths on the Big Screen - Interactive Whiteboards Enhancing the Numeracy Session

Adria Quinn - Westbreen Primary School

Lecture **Years P - 6**

This session will show different ways that Interactive Whiteboards can be used to increase student engagement and understanding in the primary maths classroom. With activities ranging from fractions and decimals to patterning and probability, this session will inspire you to explore the different uses and possibilities presented by Interactive Whiteboards.

Repeated as C6

D8 Implementing a Successful School Wide Working Mathematically Approach in a Primary School
Jennifer Bowden - The Mathematical Association Of Victoria
Workshop **Years P - 6**
This workshop will look at different platforms and ideas to implement school wide change through effective professional development. We will focus on a Working Mathematically approach to Mathematics and teachers ability to create fun filled lessons that challenge and interest students as well as assessment practices that are effective in long term planning.
Repeated as C9

D9 It's Cool To Calculate
Peter Maher - Penleigh & Essendon Grammar
Workshop **Years P - 6**
This session will demonstrate the fact that the calculator is an invaluable adjunct to student learning. This highly entertaining, hands-on workshop will demonstrate, through a series of games and activities, the potential of the calculator to strengthen a student's concept attainment. The session will show that the calculator should be a regular part of any dynamic mathematics program.
Repeated as B7

D10 Maximising Success for Children Using Rotational Activities
Kim Kirkpatrick - Kennington Primary School
Sherilyn Butler - Kennington Primary School
Workshop **Years P - 6**
Using rotational maths groups allows the teacher to focus on a small group of students while giving the other students a chance to share strategies and learn from their peer. Kim and Sherilyn will share ideas for rotational group activities, how to plan and assessment strategies. Hands-on activities.
Repeated as H7

D11 Addition and Subtraction Number Fact Strategies - Foundation for Mental Computation
Rosemary Irons - Queensland University of Technology
Lecture **Years 1 - 3**
Thinking strategies for learning the addition and subtraction number facts form the basis for mental computation. This session will suggest practical activities to introduce, reinforce and practice strategies for the addition and subtraction clusters of number facts. The relationship of these operations is important to provide ease in learning the strategies for immediate recall of the number facts. Confidence in number facts enables children to extend the strategies to be flexible and creative in mental computation.
Repeated as F12

D12 Enhancing Mathematical Thinking and Teaching with Inspiration
Michael Quinn
Workshop **Years 1 - 6**
Inspiration is a program, now much used in classrooms and offices, for organising, writing, preparing presentations and developing projects. It has features that make it an ideal 'summary pad' associated with brainstorming and building concept maps. As a graphic organiser tool it offers much in the mathematics classroom where it can be used to focus and develop thinking skills, to extend children and to structure cooperative student interaction. The workshop will lead participants through a number of developed templates illustrating a number of possible applications of Inspiration in the mathematics classroom. Participants will be challenged to develop further understanding of mathematical relationships through using Inspiration in the workshop. The workshop focus is 'working mathematically' or 'mathematical thinking'. The workshop is not a promotion of the software — rather it is an exposé of approaches to thinking about mathematics teaching that can be fostered through an awareness of the software.
Notes: Participants will need their own laptops, a word processor, spreadsheet, acrobat reader and a copy of Inspiration. The latter can be obtained for a 30-day trial from the Inspiration site (www.inspiration.com).
Not Repeated

D13 Te Poutama Tau - The Numeracy Project for Māori
Elaine Dyason - Massey University College of Education, New Zealand
Ros Bartosh - Massey University College of Education, New Zealand
Workshop **Years 1 - 8**
Te Poutama Tau is a pathway for learning maths in Māori Medium classes and schools nation-wide in New Zealand. This workshop will examine aspects of the history, implementation and implications for teaching and learning.
Repeated as B15

D14 Mental Computation and Number (Teaching Effectively Using Games and Activities)
Linda Baron - Chirnside Park Primary School
Mary Burns - Chirnside Park Primary School
Workshop **Years 2 - 6**
This seminar will add depth to teacher's repertoires by exploring a variety of games, activities, ideas and insights. These can be used effectively in the classroom to support different abilities and needs of a range of students and puts the fun back into Mathematics. Ideas are easily adapted to different year levels and support VELS learning outcomes.
Repeated as C14

D15 Problem Solving Tasks and Activities for Primary School Children
Diane Foley - St Damian's Primary School
Workshop **Years 3 - 6**
This session will provide teachers with a range of Problem Solving tasks/activities for children. These tasks/activities can be used as the focus to a Maths lesson or as a spring board to a unit of work.
Repeated as C15

D16 Provoking Mathematical Conversations, and How You Might Amplify Mathematical Ideas with ICT
Matt Skoss - Department of Education & Early Childhood Education (DEECD), NT
Tony Richards - IT Made Simple
Workshop **Years 3 - 10**
Participants will be challenged with a range of interesting sorting and matching tasks that provoke understanding of the structure of mathematical concepts, including: percentages, fractions and decimals; and data representations such as box plots, pie charts and histograms. During this session, photos, movie clips and audio clips will be collected, and made into a digital artefact for participants to download at a later time. Strategies for integrating ICT strategically into lessons will be modelled.
Not Repeated

D17 Engaging Mathematics Classes For Middle Years Students
Donna Krenn - Ferntree Gully North Primary School
Workshop **Years 5 - 8**
Ensuring classes for middle years students are both engaging and effective can be challenging. This session will focus on planning, lesson structure and include highly motivating activities that address VELS.
Repeated as A22

D18 Sensible Mathematics Teaching and Sensible Mathematics Learning
Len Sparrow - Curtin University, WA
Paul Swan - Edith Cowan University, WA
Workshop **Years 5 - 8**
This workshop will describe and illustrate teaching strategies in the primary classroom to help children make sense of the mathematics they are being taught. Tasks presented will be analysed as to their potential to engage children in making decisions, explaining, and connecting new knowledge to what is already known.
Repeated as F21

D19 Using a Measurement Model to Develop Understanding About Fractions
Max Stephens - University of Melbourne
Catherine Pearn - University of Melbourne
Workshop **Years 5 - 8**
Some students know routine algorithms for working with fractions but may lack understanding of fraction concepts and representations including number lines. This inability seems to be a result of their limited experiences in using number lines (measurement model) in their work on whole numbers. This session will be 'hands-on' and uses paper folding, fraction walls and number lines to develop an understanding of fractions using a measurement model.
Repeated as A23

D20 Enhancing Mathematics Teaching Using Interactive Whiteboards
Lauren O'Grady - Edsoft Pty Ltd
Workshop **Years 5 - 9**
Lauren will present a variety of ideas for the teaching of maths with IWB's. Her session will include the use of Activ Studio, Easiteach, Digital Learning Objects, Mult-e-Maths and associated software. (Commercial Presentation)
Repeated as A26

D21 Worksheets (Spreadsheets) to Use Tomorrow

Ken Walker - Matthew Flinders Girls' Secondary College
John Howes - Matthew Flinders Girls' Secondary College
Casey McGarigle - Matthew Flinders Girls' Secondary College

Computer Lab **Years 5 - 10**

If you want materials that interest students, self correct and cover lots of different topics come along. We will give you spreadsheets that you can use next lesson and show you how to make your own. You only need a desire to end some of that 'last lesson boredom' and some basic spreadsheet knowledge.
Notes: Bring a USB key to take home files to use next lesson.
Repeated as C25

D22 Make A Moke

Douglas Williams - Black Douglas Professional Education Services

Workshop **Years 5 - 11**

Those who know me might think this session relates to financial mathematics and the amount of money I have spent rebuilding my favourite car. But no, the session is about a game built around my favourite car; a game similar to Beetle (not the VW kind), but simpler and easier to analyse. Investigating beyond the game involves chance and data curriculum elements from Years 5 to 11. The investigation is recorded in Maths300, so if you are a member, you can find it for yourself. But if you are not a member this is an opportunity to have some fun with some serious mathematics and simultaneously get a feel for the type of material in this project. To the extent that you consider the connection with Maths300 to be commercial, this could be interpreted as a commercial presentation.
Not Repeated

D23 Hands-on Ratio and Proportion

Ian Lowe - The Mathematical Association of Victoria

Workshop **Years 5 - 12**

The topic of ratio and proportion (VELS 4, 5 and 6) is one of the most practical in everyday life. Ian's units of learning material for this topic combine lesson plans with cards for instructions for hands-on investigations. The approach will appeal to teachers of maths with science teaching background.
Repeated as C27

D24 Why Teach Maths with the Brain in Mind?

Michael Richards - JAMI Educational Services

Workshop **Years 5 - Adult**

More knowledge about the brain has been gained over the last ten years than the previous one hundred. Results of this more recent brain research can be effectively used as a way of selecting clever and effective ways of teaching mathematics. Brain-based teaching can provide a framework for our mathematics teaching that more readily engages students. This lecture will include a little theory, along with research based frameworks and examples of brain-based mathematics teaching strategies.
Not Repeated

D25 The Pluses and Minuses of Teaching Integers

Trevor Saunders - Massey University College of Education, New Zealand
Anna Satherley - Massey University College of Education, New Zealand

Workshop **Years 6 - 8**

This workshop will explore the common difficulties encountered when teaching integers. It will look at teaching integers in context using a range of resources. It will also examine how to extend students understanding of integers through exploration.
Repeated as C30

D26 Exploring Algebraic Thinking

Deborah Gibbs - Massey University College of Education, New Zealand

Workshop **Years 6 - 9**

This session will define Relational thinking and provide some practical activities to develop algebraic thinking for teachers and students. The session requires participants to be actively involved in the activities and discussions around difficulties students may experience in algebra.
Repeated as C31

D27 Cholesterol, Genital Herpes and Mars Bars

Anthony Harradine - Prince Alfred College, SA

Workshop **Years 6 - 10**

Probability is not well understood. Questions from TV commercials and product promotions are crafted into simple, but powerful and engaging lessons that assist in understanding probability. A spreadsheet will be used and the new

version of TinkerPlots will be demonstrated to illustrate the power of animation when joined to simulation.
Not Repeated

D28 Using PEEL to Enhance Mathematics Learning in the Middle School
Rosemary Dusting - Wesley College
Workshop **Years 7 - 8**
PEEL continues to provide inspiration to teachers after more than twenty years. In this session I will describe and workshop some of the procedures that I have personally found to be effective in my teaching of middle years' mathematics. The session would be suitable for teachers who are PEEL 'beginners' and also teachers who have already trialled some PEEL ideas. As part of the session, teachers will be invited to share their favourite PEEL lessons.
Not Repeated

D29 Classroom Organising, Topic Planning and Student Tracking AND Reducing Teacher Workload
Bill Murray - Mentone Girls' Secondary College
Lauren James - Mentone Girls' Secondary College
Computer Lab **Years 7 - 10**
The classroom organiser, topic planner and student tracker is a system that has an overarching objective - To enable teachers to improve the methods they employ to meet the needs of individual students in the classroom, provide evidence of their progress and communicate effectively with all of the stakeholders. To do all of this while creating a significant reduction in teacher workload in the organising, planning and tracking processes that we are all supposed to use. This program is currently being developed by teachers for teachers and this is your chance to come along and give us feedback on the development so far. (Commercial Presentation)
Notes: Bring a topic plan with you.
Repeated as G31

D30 Patterns in Mathematics
David Perry - Camberwell Grammar School
Lecture **Years 7 - 10**
When you cut a piece of toast n times can you find a pattern for the number of pieces you obtain? When a number of teams play a round robin, can you use patterns to organise the competition? These and other situations will be investigated, using both algebra and geometry.
Repeated as C32

D31 Air Rockets
Denis Day - Glenvale School
Subra Muniandy - Glenvale School
Workshop **Years 7 - 10**
This is a great activity to engage students in some relevant and fun maths. Come along and find out how to build the launcher and the rockets. The rockets will then be launched and some of the maths involved will be discussed. This activity is rich in mathematics and can be used over a wide range of ability levels.
Repeated as C33

D32 Fibonacci and Fractions
Diane Itter - La Trobe University
Workshop **Years 7 - 10**
In 1202, Fibonacci introduced Hindu-Arabic arithmetic to Europe through his work "Liber Abaci". Fibonacci presents an unusual approach to fractions. Why did he take this approach? Can we learn something about teaching students about fractions from Fibonacci? This is joint work with Christopher Lenard and Terry Mills.
Not Repeated

D33 Interactive Maths Series Software Training (Computer Workshop)
Paul Rehill - mathsteacher.com.au
Computer Lab **Years 7 - 10**
In this workshop, you will learn about and explore the following features of G S Rehill's Year 7-10 Interactive Maths (Second Edition) software in terms of VELS progression points:
1. The 1,222 interactive exercises accessible by students.
2. Using performance analysis tools to monitor student achievement and identify strengths and weaknesses to accelerate learning.
3. The randomised worksheet and solution sheet generator for 1,222 topics.
4. Creating reusable Revision Templates to form new miscellaneous exercises, worksheets or tests for students.
5. Exploring the software series quickly and efficiently as a teacher.

(Commercial Presentation)
Repeated as F34

D34 Cooperative Learning in the Maths Classroom
Mark O'Brien - Online Teachers' Resource Network
Workshop **Years 7 - 10**
"Research on how people learn has suggested that learning is a social process and that cooperative learning activities are essential if students are able to construct their own knowledge": Alice F Artzt and Claire M Newman. "Independence and collaboration: Learning experiences should encourage students to learn both independently and from and with others.": Curriculum Framework Learning and Teaching Principles. As mathematics teachers we are not traditionally highly skilled in allowing students to work cooperatively. However, there is a lot of information available on both the how and why of cooperative learning and this presentation aims to impart some of that information and also some of the presenters experience from the classroom.
Not Repeated

D35 A Beginners Guide to Programming on the TI-Nspire CAS
Stephen Arnold - Compass Learning Technologies, NSW
Workshop **Years 7 - 12**
Are there things you would like to do with TI-Nspire that are currently not available? Using the powerful programming features of this wonderful learning tool, teachers and students can create and design new capabilities and add a whole new dimension to the mathematics learning experience. This hands-on workshop introduces programming and is suitable for beginners.
Notes: Bring along your own TI-Nspire CAS handheld or laptop with TI-Nspire software installed, or use a device supplied at the workshop.
Repeated as C37

D36 Investigating Mathematically
Jeff Trevaskis - Mooroopna Secondary College
Warren Snow - Mooroopna Secondary College
Workshop **Years 9 - 10**
A session that will introduce simple investigation skills leading up to investigations of more complexity.
Repeated as C41

D37 Project Based Learning in the 21st Century
Lyn McGoldrick - Ringwood Secondary College
Joanne Roughan - Pembroke Secondary College
Lecture **Years 9 - 10**
'Project based learning' is designed to put students into a students-as-workers setting where they have the opportunity to develop 21st Century skills such as collaboration, written and oral communication and critical thinking while covering VELS. This is an account of my experience with implementing an extended Project Based Learning task with my Year 9 mathematics class.
Repeated as G40

D38 Anyone for Geometry?
Robert Money
Lecture **Years 9 - 10**
Geometry provides the most accessible way of introducing Year 9-10 students to the question "What is mathematical truth?" The isosceles triangle theorem and the angle sum of triangle theorem provide the link between the initial assumptions of deductive geometry and further results, such as the angles in circles properties.
Repeated as E43

D39 The TI-Nspire in Years 9 and 10
Glenda Gerrard - Taylors Lakes Secondary College
Judy Taylor - Taylors Lakes Secondary College
Lecture **Years 9 - 10**
In 2007 and 2008 I have introduced students in Years 9 and 10 to the TI-Nspire. Hear about this experience from both a student and teacher perspective. We'll bring the calculators. Come and try out a few activities!
Repeated as C42

D40 Activities to Get Started on the TI-Nspire CAS

David Greenwood - Trinity Grammar School
Sylvia Michaels - Trinity Grammar School

Workshop **Years 9 - 11**

This workshop will explore the use of TI-Nspire CAS technology in a number of mathematical activities for Years 9-11 Mathematics. Participants will become familiar with the functionality of the calculator but also use the technology to work on a number of tasks which could be posed as activities for students in any mathematics class room. Activities relate to areas in Algebra, Graphs, Statistics and Geometry.

Notes: Calculators will be supplied.

Repeated as G42

D41 Be N-spired

Neville Windsor - Hellyer College, TAS

Workshop **Years 9 - 12**

This will be a hands-on introductory session on the new TI-Nspire. Prior experience is not expected.

Repeated as C43

D42 Investigating "What If" Questions: Teaching Mathematics with Dynamic Interactive Documents

Alper Ciftci - Isik College

Lecture **Years 10 - 12**

Nowadays teaching mathematics requires linking multiple representations. Each recent technology that we plan to integrate in our teaching has certain promises. How can we utilise them in the most efficient way to ensure that our class documents gain full interactivity. A range of examples from different software packages will be discussed with their best practice and limitations. A special focus on Maple, Mathematica, ClassPad, TI-Nspire will be given among other software packages as well.

Repeated as B43

D43 Exploring Functional Relations Using Computer Algebra

David Leigh-Lancaster - Victorian Curriculum & Assessment Authority (VCAA)

Computer Lab **Years 10 - 12**

This session will explore some simple functional relations that characterise symmetry and equivalence for common functions of a single real variable. The computer algebra system (CAS) Mathematica will be used to assist in these explorations. No previous experience with this CAS is required, however participants should be comfortable with using software in a Windows environment.

Repeated as F44

D44 Two Terrific Technologies

Geoff Phillips - Geoff Phillips Publications

Lecture **Years 10 - 12**

Teacher and author Geoff Phillips will take participants on a tour of his two favourite mathematics technologies - the quick, slick ClassPad 330 / ClassPad Manager emulator and the powerful graph plotting and desktop publishing program, Graphe Easy. Geoff will explain why, in his opinion, both of these technologies are superior to their competition. There will also be the opportunity to ask "How do I..." questions about the technology. (Commercial Presentation)

Repeated as C46

D45 Introducing the ClassPad to Students on a Pathway to Further Mathematics

Maria Schaffner - Penleigh & Essendon Grammar
June Warren - Penleigh & Essendon Grammar

Lecture **Years 10 - 12**

This session provides useful tips for introducing and working with CAS in the General Maths and Further Maths classroom. The presenters will share ideas for developing worksheets using the ClassPad. Participants will be provided with sample student worksheets used for statistical analysis and a selection of Modules relevant to Further Mathematics.

Notes: Please bring Casio ClassPad 330 to this session if you have one. Limited numbers will be available.

Not Repeated

D46 *n*spire CAS Calculators in Distance Education

Neale Woods - Distance Education Centre Victoria

Workshop **Years 10 - 12**

Mathematics teachers at the Distance Education Centre Victoria (DECV) have been writing detailed course material incorporating the *n*spire CAS calculator for their Years 10, 11 and 12 students. In this workshop, participants will have a hands-on opportunity to trial some of this material. Calculators will be provided.

Notes: nspire CAS calculators will be provided but participants are encouraged to bring their own.
Not Repeated

D47 Discovery Based Learning Using New Symbolic Geometry Software
Phil Todd - Saltire Software, USA
Lecture **Years 10 - 12**
Geometry Expressions is a constraint-based symbolic geometry system. We will describe how the software can be used in conjunction with CAS to motivate problems in algebra, trigonometry and calculus, and to facilitate discovery based learning. (Commercial Presentation)
Repeated as E46

D48 Using Resources to Assist Teachers in Effective Teaching of General and General Advanced Mathematics
Paul Negri - Highvale Secondary College
Alan Brookes - Highvale Secondary College
Computer Lab **Years 11 - 11**
Mathstrack is an integrated resource that provides teachers with the necessary tools to enhance the process of teaching and learning. If used to its full potential it will reduce teacher workload and at the same time provide students with a large variety of interactive consolidation, with emphasis on General and General Advanced Mathematics Units 1 and 2. (Commercial Presentation)
Repeated as H36

D49 Moving to the TI-Nspire CAS for General Mathematics and Further Mathematics Teachers
Russell Brown - Educational Consultant
Workshop **Years 11 - 12**
Moving from the TI-84Plus to the TI-Nspire CAS? Apart from the CAS capabilities the TI-Nspire CAS has full Data and Statistics functionality that is easy to use and is very intuitive for student use. In this hands-on session we will address many areas of the FM core and also some topics from the options. This will be aimed at the introductory level user with detailed instructions on how to construct univariate and bivariate plots with meaningful axes labelling, find correlation coefficients and regression lines and also look at finance calculations using TVM Solver.
Notes: Loan calculators will be available if required.
Repeated as C50

D50 Unification of Domains in Probability Distribution Chart
Mohammed Mall - Stotts College
Lecture **Years 12 - 12**
Unifying the domains such as x (data value), z (standardised value) and p (probability) in a single chart and calculating their relations.
Repeated as B52

D51 Further Maths: Further Maths Examination 2
Rob Vermay - St Paul's Anglican Grammar School
Lecture **Years 12 - 12**
The setting and marking process will be explained and general comments made on the Further Mathematics 3/4 Examination with reference to past published assessment reports.
Not Repeated

SESSION DETAILS
SESSION E: 9:00am - 10:00am Friday 5th December

EK1 Digital Content: Connecting Kids (Primary)


Sue Ferguson - The Learning Federation
Leanne Robertson - The Learning Federation

Keynote **Years P - 6**

Kids have grown up in a digital world. Learning in mathematics, and in other subjects, needs to incorporate digital experiences to connect with students. The Le@rning Federation develops digital content, available free for all schools in Australia and New Zealand. This keynote will examine the decisions made in designing digital content to support mathematics learning and show some of the exciting learning objects about to be published. A teacher will demonstrate classroom use by running a mini lesson with a group of students using an interactive whiteboard. A DVD containing all mathematics and numeracy content published to date will be made available to participants.

Sue Ferguson *is the senior project officer for The Le@rning Federation (TLF). She has been an educational specialist and subject matter expert for TLF's mathematics/numeracy projects and was part of the research team examining the effect of TLF mathemtics/numeracy content on teacher pedadogy and student learning outcomes. Sue has taught mathematics in a number of secondary schools in Victoria.*

Leanne Robertson *is the Senior Manager: Learning Design for The Le@rning Federation (TLF). Leanne has taught in primary schools in New Zealand, UK and Australia. She has developed and delivered programs and resources for the Telecom Information Technology Roadshow in NZ. Her interest in ICT and resource development has continued through research projects and work on the creation of digital learning objects at TLF.*

EK2 National Numeracy Review: A Forum

Peter Sullivan - Monash University
Marty Ross
Elizabeth Burns - Loreto Mandeville Hall

Keynote **Years P - 12**

In May this year the Council of Australian Governments released the National Numeracy Review Report. The Report is a "stocktake of research-based evidence about good practice in numeracy and the learning of mathematics". It makes a number of strong conclusions about – and consequent recommendations for – the teaching of mathematics. This keynote will consist of a forum on this important Review, to consider its content and meaning. The invited speakers will be given time to express their views, but there will also be ample opportunity for others to speak. The intention is to promote discussion, and to collectively reflect upon the implications of the Review.

EK3 Making Connections in Junior Secondary Mathematics

Colleen Vale - Victoria University

Keynote **Years 7 - 10**

The junior secondary years are a critical time for engaging students in mathematical learning that encourages and enables their continuing participation in mathematics throughout secondary school. In this lecture I will discuss the various connections that are important for students engagement and learning. I will provide illustrations of various connections for important mathematical ideas at this level such as proportional reasoning and relational understanding, and consider the mathematics and pedagogical knowledge needed for teaching. Also, structures

that support students and teachers to make these connections will be discussed.
Colleen Vale *is an Associate Professor in mathematics education at Victoria University and a former secondary school teacher. She teaches in the primary and secondary pre-service teacher programs at VU and is co-author of the recently published and highly acclaimed text "Teaching Secondary School Mathematics: Research and Practice for the 21st Century". Her research interests include equity, technology and professional development, especially for junior secondary mathematics. In the last couple of years she has conducted a range of professional development programs for junior secondary mathematics teachers, mentors and coaches. She is the Immediate Past President of MAV, an AAMT Councillor, Vice President (Publications) of MERGA and a member of the International Planning Committee for 17th ICMI study: Technology Revisited.*

E4 Student Maths Packs and Class Take Home Maths Activity Bags
June Penney - Darley Primary School
Roger Suter - Darley Primary School
Workshop **Years P - 4**
At Darley Primary School we have developed a 'Maths Pack or Maths Tool Box' for each child. The contents of the pack is added to each year and goes with the child from year to year. The pack contains basic items like dice, counters and number charts. It is designed for regular use to develop number skills and concepts. As part of our Family Maths Program we have also made 'Class Take Home Maths Activity Bags' which are used across the school. These bags contain games and activities for children and families to share at home. There is a journal for recording comments and adding photos or drawings about their experiences. In this session we explain how we went about setting these up. We will also look at the contents of the packs and the different ways to use the equipment to develop number skills, number strategies and number concepts. This session will be suitable for Primary Teachers Prep to 6 (with emphasis on Lower Primary).
Notes: We can send reproducable pages via emails or if people bring memory sticks we can load reproducable pages on the day.
Repeated as G7

E5 Show and Tell
Sue Gunningham - Sue Gunningham Consultancy Services P/L
Workshop **Years P - 4**
Do you have a great P-4 numeracy activity that is not long enough to warrant its own workshop? Then this session, hosted by the team from Prime Number, the MAV's primary school teachers' journal is for you. Bring along your activity to share with other participants and your hosts will happily take notes and photos for later distribution to everyone attending the session. Who knows – you might even find your activity featured in a future edition of Prime Number.
Not Repeated

E6 Focussed Games to Assist in Teaching the Four Processes
Sue Fine
Workshop **Years P - 4**
Within all classrooms there are students who feel uneasy about maths. Using rich lessons in the form of games and open-ended activities enables all students to enjoy learning and not feel threatened by their lack of confidence or ability in maths. This session will focus on quality maths games particularly in the areas of place value, addition, subtraction, multiplication and division to promote a love of maths. Games that match the learning focus of the lesson can also be used for assessment. The emphasis on this session is enjoyment for the participant, and also to take away easy to organise, useful activities that provide both entertaining and learning experiences for your students.
Repeated as B6

E7 Getting the Mathematical Message Out There
Janine McIntosh - Australian Mathematical Sciences Institute
Katelyn Haites - McKinnon Primary School
Lecture **Years P - 6**
There was no getting away from Mathematics at McKinnon Primary one week in June this year. On Monday teachers took part in a full day teacher professional development session. Thursday afternoon was time for the children to have a go and on Thursday night they brought along their parents for a family maths night. In this session, we will share the teacher, student and parent activities so that you can raise the profile of mathematics in your school.
Repeated as F8

E8 Language and Literacy in Primary Mathematics Teaching

Catherine Pearn - University of Melbourne
Helen Gist - Department of Education, Early Years Childhood Development
Sue Young - Serpell Primary School

Lecture **Years P - 7**

This session will explore the purposeful and explicit teaching of language and literacy skills in primary mathematics. It will focus on how students can use their language and literacy skills to deepen their understanding of mathematics. We will explore how teachers can improve students' literacy and language skills and create a classroom environment of vibrant mathematical discussion.

Not Repeated

E9 Education for Consumer and Financial Literacy in Schools

Social Education Victoria

Workshop **Years P - 10**

The Consumer and Financial Literacy Professional Learning Program aims to build the capacity of teachers in primary and secondary schools to engage students in consumer and financial literacy. This workshop will explore the package at different school levels and the different ways it can impact on curriculum. This workshop will mainly focus on module one which provides a context for the significant growth and interest in teaching and learning consumer and financial literacy. It includes background, rationale and purpose, and opportunities for integrating and embedding it into the existing curriculum for the compulsory years of schooling. It encourages participants to build their own pedagogical content and community partnerships for long-term sustainability.

Repeated as F10

E10 Making the Connection: Helping Struggling Students Achieve

Anita Chin - Origo Education

Workshop **Years 1 - 6**

Identifying and understanding conceptual, and not just procedural, holes in students' thinking and communication skills enables us to implement more effective techniques for working with struggling mathematics students. This hands-on workshop will examine the purposeful use of key models for building connections between concrete, pictorial, verbal, and symbolic representations of number concepts. Strategies to cater for all students in a mixed ability classroom will be discussed and practical ideas for implementation will be modelled.

Repeated as B14

E11 Whole School Improvement in Learning

Paul Brown - Carmel School, WA

Lecture **Years 1 - 12**

Education research now allows us to quantify the impact of the many possible innovations in schools. The results can be quite surprising. This session will draw on research by Professor John Hattie, as presented at the Mathematics Teachers' Summer School, to rate the many teaching and learning innovations that are possible.

Not Repeated

E12 Digging Into Hands-on Tasks

Douglas Williams - Black Douglas Professional Education Services

Workshop **Years 2 - 10**

For more than 15 years the Mathematics Task Centre Project has been collecting hands-on problem solving tasks and collecting and distributing classroom wisdom related to integrating them into the curriculum. They can be the beginning of many real alternatives to the textbook/worksheet diet which many teachers are now finding a little ineffective. This session is for those who are beginning to think about richer possibilities for their curriculum. Explore a few tasks; find out how to access their depth in the context of students learning to work like a mathematician; extend your knowledge of the breadth of web-based support. To the extent that you consider the connection with the Task Centre project to be commercial, this could be interpreted as a commercial presentation.

Not Repeated

E13 I Spy the Pie - Box Cars Fraction Games

Fiona Affleck - EdSource, WA
Miranda Milaszewicz - Chatham Primary School

Workshop **Years 3 - 6**

Bring fraction concepts to life for your students in a meaningful hands-on way. Teach fractions through game play developing children's understanding before they attempt algorithms. Come prepared to play and have fun, with games that teach fraction names, comparing of fractions, equivalence and trading of fractions, leading to algorithms.

Repeated as F16

E14 Building Mental Strategies

Pauline Rogers - University of Ballarat

Lecture **Years 3 - 7**

The difference between practice/rote and truly building students' mental mathematics skills will be examined during this session. A focus of the session will be multiplication strategies; however other areas will be examined. These strategies would be useful for supporting students at risk or within intervention programs (at both primary and secondary levels).

Notes: Participants will be able to download a free resource onto thumbsticks during the session.

Repeated as A15

E15 Working Mathematically in VELS

Ian Lowe - The Mathematical Association of Victoria

Workshop **Years 3 - 10**

On the MAV website, free to members, are yearly plans for Years 3 to 10. Many schools with Maths With Attitude kits use these guides to using Maths300 lessons and the Problem Solving Task Centre materials (for Working Mathematically) along with many other excellent materials (for Toolbox concepts and skills). Ian will explain how they link to VELS and provide examples.

Repeated as A16

E16 Bit by Bit: Putting Fractions Together

Shirley Collins - University of Waikato

Wendy Falconer - University of Waikato

Workshop **Years 4 - 6**

This is a hands-on workshop incorporating the use of equipment and practical ideas for teaching fractions. Delegates will participate in games and activities suitable for using in their classrooms.

Repeated as F17

E17 Understanding Spatial Data - Mathematics and Geography Combine

Pat Beeson - Australian Bureau of Statistics

Lecture **Years 4 - 12**

How could maths and geography combine to create a better understanding? The presentation will illustrate how postcode data fed into a GIS system, became more meaningful with input from the maths department. It will go on to discover what is meant by spatial data, where to access it and how it may be integrated into the Spatial Technology in Schools Competition.

Repeated as B20

E18 EQUAL. The Mathematics of Balance

Rhonda Lyons - Warrnambool West Primary School

Workshop **Years 5 - 6**

Thinking about choices we make, it is good to give children the mathematics of input and output for eating and energy expenditure. This can go further into environmental studies. If we can include a simple way of counting our input and evaluating our output then we can all be more in control of our choices.

Notes: Flashdrive for copy of notes if required. Laptop optional.

Repeated as C20

E19 Using Diagrams In Problem Solving: Understand The Problem, Simplify The Solution

George Booker - Griffith University, QLD

Workshop **Years 5 - 8**

Developing problem solving is as much dependent on spatial thinking as on the more apparent facility with computation and measurement. Using diagrams to encapsulate information or depict the various possibilities are powerful tools in coming to terms with underlying questions and provide insight into ways to proceed to a solution.

Notes: Please bring a simple 4 function calculator to this session

Repeated as C21

E20 Open Ended Tasks in Number

Leonie Anstey - Department of Education & Early Childhood Education (DEECD)- Gippsland Region

Workshop **Years 5 - 8**

This session will explore a range of open ended tasks to cater for mixed abilities in your classroom in number. The focus will be on both additive and multiplicative thinking.

Repeated as G23

E21 Engaging Middle Years Students in Mathematics Using the MATHOMAT

Ted Marks - Albion North Primary School
Steve Lewis - A.U.S.S.I.E. Maths Consultant, New York, USA

Workshop **Years 5 - 9**

Participants will investigate how using the Mathomat Geometric template and CD can effectively close the achievement gap for disengaged students as the Mathomat template provides an effective vehicle through which students can demonstrate their mathematical thinking. We will explore investigations using the Mathomat geometric template. Sample lessons will be workshopped and provided to participants. We will also investigate how the Mathomat CD can be used with Interactive Whiteboards in the state-of-the-art classrooms. (Commercial Presentation)

Not Repeated

E22 Writing and Implementing a New Mathematics Curriculum for the Cook Islands

Alison Fagan - Massey University College of Education, New Zealand

Lecture **Years 5 - 10**

A review of the process of writing and implementing a new mathematics curriculum for the Cook Islands and in particular linking it with the New Zealand Numeracy Project. Relevant and culturally appropriate resources were developed to assist teachers, and these were demonstrated in conjunction with the implementation at inservice and preservice workshops. These workshops were held on 8 of the inhabited islands, some up to 4 hours flying time away and often in difficult conditions.

Repeated as A27

E23 Developing Numeracy Skills Among Students with Disabilities and Learning Difficulties

Rebecca Seah - Woodridge State High, QLD

Workshop **Years 5 - 10**

With careful planning and proper scaffolding, many students with disabilities and learning difficulties can engage in multiplicative thinking. This workshop involves hands-on activities and sharing of personal experiences on teaching students with mathematics difficulties; concepts such as ratio, fractions and rational numbers that will benefit all students.

Repeated as F24

E24 A Mean Approach Can Be a Problem: Looking for Variation in Data

Max Stephens - University of Melbourne

Lecture **Years 5 - 12**

The mean value (average value) is one important feature of any data set, but looking only at the mean value can obscure attention to the important feature of variability. This session will provide practical and realistic examples to help students notice why it is important to see how data values are spread.

Repeated as B26

E25 So This Will Be/Has Been Your First Year of Teaching Mathematics?

Rob Vermay - St Paul's Anglican Grammar School

Lecture **Years 5 - 12**

This workshop will explore a range of issues of interest to new mathematics teachers including dealing with individual differences, motivation, common errors, class and time management, assessment, current computer, calculator and whiteboard technology, resources, dealing with parents, etc. Other issues may arise during the discussion and will also be addressed.

Notes: This session is aimed directly at those new to teaching.

Not Repeated

E26 Having Some Fun with Numeracy and Maths

Dave Tout - CAE & Multifangled

Workshop **Years 5 - Adult**

This popular, hands-on workshop will enable participants to experience a range of activities suitable for classroom use. The activities have been developed for adult numeracy students but are suitable for all students, especially middle years and VCAL students. The activities focus on the development of maths skills through approaches such as co-operative group work and the use of hands-on materials, as well as on enjoyment and having fun with maths. [Based on resources available through CAE, a not-for-profit educational organisation]

Repeated as G27

E27 Learning and using Geometers SketchPad

Jessica Wagner - Victoria University
Hagir Eltayeb - Victoria University

Computer Lab **Years 6 - 8**

Although Geometers SketchPad has been around for many years we have discovered that, for many reasons, there

are still many teachers who do not use this package. As part of our learning to teach we approached learning about the manipulation and use of this package from a beginners perspective. As such we discovered many interesting features of using and integrating this package. In this workshop we will cover how Geometers SketchPad works and use some practical examples and problem solving activities to enable learning in a simple way. We are DipEd students from Victoria University.
Repeated as G28

E28 Using Some Simple but Effective Technology Free Codes/Ciphers
Peter Collins - Patterson River Secondary College
Lecture **Years 6 - 9**
The Vigenere and Playfair Ciphers are two cipher systems which were both widely used in the past for sending coded messages. With minor modifications, both can be used by Junior Secondary Students to effectively send and receive "secret" messages. This is done, as it was in the past, technology free. Although some theory will be touched on, emphasis in the session will be on mastering use of the ciphers with a view to using this as a class activity.
Notes: Participants will require an operational pen or pencil.
Repeated as F27

E29 HOTmaths – Let Me Count the Ways
Sharon London - HOTmaths, NSW
Computer Lab **Years 6 - 10**
Discover a wealth of investigations and interactive resources on the HOTmaths website and find out how teachers are using them as part of their normal teaching. For teachers, students and parents – practical, informative, motivational and effective. Curriculum-based HOTmaths includes working mathematically, investigations, animations, interactive activities, drill and practice, computer-marked assessment ideas and immediate feedback and progress reports. Also come and see examples of the exciting curriculum-based whiteboard activities embedded in the lessons throughout the HOTmaths website. (Commercial Presentation)
Repeated as F29

E30 A Multimodal Approach to Middle Years Mathematics: Bridging the Seven Year Difference
Tom Robinson - Fitzroy High School
Chris Millard - Fitzroy High School
John Davidson - Fitzroy High School
Rachel Dean - Fitzroy High School
Lecture **Years 7 - 8**
Staff at Fitzroy High School have been working with consultant Charles Lovett to develop a multimodal approach to mathematics in Years 7 and 8, that focuses on improving math skills across the board. Students work from a menu based booklet that includes whole class lessons, computer-based activities, hands-on tasks and worksheets. Students are able to work both independently and in small groups concentrating on the areas in which they need improvement. Students are more motivated to complete work and participate in classes. The data shows a marked improvement from Years 7 to 8. This session will explore the structure of the booklet, materials used, the approaches taken and some of the initial data obtained.
Repeated as A32

E31 Present It
Peter Hartley - Carey Baptist Grammar School
Lecture **Years 7 - 9**
PowerPoint can be used to present your Maths lessons but how do you make presentations interesting and effective? This session will look at different ways that PowerPoint can be used to promote learning in the classroom. Included will be the use of animation, graphics, story and sequencing to take your presentations beyond a straight presentation of facts.
Not Repeated

E32 Using the Promethean Interactive Whiteboard in the Secondary Maths Classroom
Helen Burns - St Arnaud Secondary College
Jennifer Leishman - Donald High School
Workshop **Years 7 - 10**
Jenny and Helen have been collaborating and trialling new ways to present concepts, motivate students and provide interesting class activities using the Promethean Interactive Whiteboards. In our workshop, we will demonstrate a variety of successful flipcharts we have used in our classrooms. We will provide a CD to participants with the flipcharts we intend to demonstrate.
Repeated as B30

E33 Fostering a Culture of Problem-Solving in Mathematics

Ray Peck - Australian Council for Educational Research (ACER)

Workshop **Years 7 - 10**

What good is mathematics knowledge if it cannot be applied to solve problems? But just what is a good or real problem? How can ALL students become better at (and even enjoy) problem-solving? How can teachers improve and sustain their practice and how can schools foster a culture of problem-solving? It's easy to ask the questions but what are the answers? This session will discuss and model effective strategies and share exemplary resources and experiences. Participants should bring along their favourite problems and resources.

Repeated as H23

E34 Whole Class Activities for Years 7-10

Theresa Pagon - Jacaranda (John Wiley & Sons)

Workshop **Years 7 - 10**

Presentation of a series of activities for use in Year 7-10 classrooms. Activities are targeted to explore specific concepts through group work and class discussion. Participants will receive a booklet of activities and accompanying a teacher guide for each activity. (Commercial Presentation).

Repeated as A36

E35 Are We Still Investigating Mathematics?

Mark O'Brien - Online Teachers' Resource Network

Lecture **Years 7 - 10**

Investigations may be defined as "a situation originating in mathematics or the real world which lends itself to inquiry". They allow students to examine the situation using various techniques, and in the process of their exploration, develop skills that can be applied to other problems. The type of skills normally associated with investigations are generally higher order skills or processes; including data collection, symbolizing, classifying, simplifying, abstracting, following and extending patterns, conjecturing, communicating, generalising, justifying, proving, hypothesising and predicting. These processes often fall under the broad headings of working or thinking mathematically or mathematical reasoning. Having developed and practised these thinking skills students become more able to apply and transfer this knowledge to new, non-routine situations as they arise. This session aims to look at the reasons Investigations became an important part of our mathematics classrooms, and how and why we should still be using them. (Commercial Presentation)

Not Repeated

E36 Teaching Students to Solve Algebra Word Problems

Anne Lawrence - Massey University College of Education, New Zealand

Workshop **Years 7 - 11**

Anne will share some of the activities and key findings of a recent classroom teaching experiment involving two teachers and their senior students. The project was instigated by the teachers who were concerned that their students struggled with solving algebra word problems. Anne's work with the teachers involved exploring students' difficulties and designing teaching/learning activities aimed at improving students' use of algebra to solve word problems. Although the research focused on New Zealand Year 12 students, Anne suggests that the activities would be useful with students at a range of levels, from lower middle school to upper secondary school.

Not Repeated

E37 Non-Routine Mathematics Problem-Solving Using Algebra

Karim Noura - Bayside Secondary College

Lecture **Years 7 - 12**

Teachers will share their experience to solve non-routine mathematical problems (possible open-ended problems) using various strategies including algebra in particular. CAS calculators will be very useful for the presented problems.

Notes: Please bring your CAS calculator to this session.

Repeated as A38

E38 Using Geogebra in Senior School

Peter Swain - Ivanhoe Girls' Grammar School

Emily Hui - Ivanhoe Girls' Grammar School

Computer Lab **Years 7 - 12**

A workshop on how Geogebra, a freeware program readily available from the internet, can be used to enhance student learning in the areas of geometry, algebra and calculus.

Repeated as F36

E39 Helping You to Change Your Teaching From Reactive to Proactive

Alexander Young - FlickNTick Pty Ltd, TAS

Lecture **Years 7 - 12**

The presentation will demonstrate how easy it is to change your teaching from reactive to proactive. AutoMarque Version 2 will help you achieve this by,

1. Boosting the quality of your teaching.
2. Enhancing your students' focus.
3. Reducing your workload.

(Commercial Presentation)

Not Repeated

E40 Wired and Wireless Networking of TI-Nspire Devices in the Classroom

Ray Williams - St Mark's Anglican Community School

Workshop **Years 8 - 12**

This session will be a practical, hands-on activity displaying the advantages and benefits for enhanced teaching strategies when student devices are networked to the teacher.

Repeated as F38

E41 A Beginners Look at the TI-Nspire Calculator

Jennifer Curtis - St Mark's Anglican Community School

Workshop **Years 9 - 10**

This session will be a practical, hands-on activity touring the key pad and introducing some ideas for use in the lower secondary classroom.

Notes: If you don't have a TI-Nspire calculator there will be some available to use in this session.

Repeated as H28

E42 Preparing To Land On Mars - NASA Spaceward Bound Expedition 2008

John Mitsinikos - Strathmore Secondary College

Lecture **Years 9 - 10**

"The experience of a life time" everybody said before I left. They were not wrong! I was lucky enough to be part of the NASA Spaceward Bound Mojave Desert expedition of 2008. The main highlight of the trip was the one week I spent researching and collecting data with some of the most talented scientists in the world. That research will be used as signatures by interplanetary scientists who are currently working closely with the Mars Rover Missions. This was a fantastic experience which has now equipped me with the skills to engage students in conducting scientific experiments and more importantly the accompanying mathematical analysis. In this session I will outline the skills and the resources I have learned and developed. Also in 2009, NASA will run a similar expedition in outback South Australia which will be open to Australian educators and I will be providing details of this trip.

Repeated as A42

E43 Anyone for Geometry?

Robert Money

Lecture **Years 9 - 10**

Geometry provides the most accessible way of introducing Year 9-10 students to the question "What is mathematical truth?" The isosceles triangle theorem and the angle sum of triangle theorem provide the link between the initial assumptions of deductive geometry and further results, such as the angles in circles properties.

Repeated as D38

E44 Getting off First Base With The ClassPad

Anthony Harradine - Prince Alfred College, SA

Workshop **Years 9 - 12**

Come and learn the basics of how the ClassPad operates and a number of useful processes that will enable you to explore it further. Useful, free resources that will assist both you and your students in moving on will be available.

Notes: BYO ClassPad or use a loan machine.

Repeated as H30

E45 GeoGebra

Brendan Owen - Ringwood Secondary College

Computer Lab **Years 9 - 12**

This is a hands-on computer workshop developing lessons using GeoGebra, GeoGebra is a free and multi-platform dynamic mathematics software for schools that joins geometry, algebra and calculus. On the one hand, GeoGebra is an interactive geometry system. You can do constructions with points, vectors, segments, lines, conic sections as well as functions and change them dynamically afterwards. On the other hand, equations and coordinates can be entered directly. Thus, GeoGebra has the ability to deal with variables for numbers, vectors and points, finds

derivatives and integrals of functions and offers commands like Root or Extremum.
Repeated as A46

E46 Discovery Based Learning Using New Symbolic Geometry Software
Phil Todd - Saltire Software, USA
Lecture **Years 10 - 12**
Geometry Expressions is a constraint-based symbolic geometry system. We will describe how the software can be used in conjunction with CAS to motivate problems in algebra, trigonometry and calculus, and to facilitate discovery based learning. (Commercial Presentation)
Repeated as D47

E47 Applications and Modelling of Mathematics and the VCE
Gloria Stillman - University of Melbourne
Phil Broadbridge - Australian Mathematical Sciences Institute (AMSI) and the International Centre of Excellence for Education in Mathematics (ICE-EM)
Michael Evans - Australian Mathematical Sciences Institute (AMSI) and the International Centre of Excellence for Education in Mathematics (ICE-EM)
Lecture **Years 11 - 12**
Mathematics is being applied in interesting and diverse fields, such as environmental modelling, security, medical research, mining and wildlife management. The VCE study design suggests that students be exposed to applications of mathematics and engage in "the application of mathematical knowledge and skills in unfamiliar situations, including situations which require investigative, modelling or problem solving approaches" (VCAA, 2005, p. 7). It is desirable to demonstrate the important role the subject has to play in present day Australia and for students to realise the importance of mathematics as a way of thinking when considering problems which arise in real contexts. In this session several applications of mathematics which are accessible to Year 11 and 12 students are discussed.
Not Repeated

E48 Maths Methods Application Tasks Can be Interesting
Michael Cody - Camberwell Grammar School
Lecture **Years 11 - 12**
There is a temptation in schools to turn the application and analysis tasks into a series of topic tests rather than give the students an opportunity to display their talent (or ignorance) in relation to the content being studied. Since the VCAA has done away with providing 'themes' or specific topics it has become more difficult to be original but you would be surprised just how much has already been done that can be turned into an interesting, challenging and learning activity for students. In this session I will present one such recycled idea in detail and discuss some ideas that have been used for others.
Repeated as F47

E49 Exploring the Potential of the TI-Nspire in Statistics
Peter Jones - Swinburne University of Technology
Workshop **Years 11 - 12**
The TI-Nspire with the latest version of its operating system comes with very much enhanced statistical capabilities. This session will give participants hands-on experience using the TI-Nspire with the aim of assessing its potential in VCE level statistics and, in particular, its use in conducting statistical investigations.
Repeated as A50

E50 Matrices on the TI-Nspire CAS
Russell Brown - Educational Consultant
Workshop **Years 11 - 12**
Discover a variety of ways to enter and manipulate matrices on the TI-Nspire CAS handheld with reference to specific examples from VCE courses including General Mathematics, Further Mathematics and Mathematical Methods CAS. This hands-on session will cover solving simultaneous equations using matrix methods, matrix arithmetic, determinants, singular matrices and unique solutions, the correlation matrix for finding r-values from lists and Markov chains (Initial State, Transition and Steady State matrices).
Notes: Loan calculators will be available if required.
Repeated as F49

SESSION DETAILS
SESSION F: 10:45am - 11:45am Friday 5th December

FK1 Who's The Boss? The Roles of Mathematics and Reality in Problem Solving

Irit Peled - University Of Haifa, Israel

Keynote **Years P - 10**

This talk will suggest a meta-perspective on the use of mathematics and realistic considerations in problem solving. The roles of mathematics will be discussed, using examples from different types of contexts and demonstrating the relationship between these roles and the nature of the problem's context.

Irit Peled *is a Senior Lecturer in the Mathematics Education Department at the University of Haifa. She has recently served as the chair of the Teaching and Teacher Education Department. She directed a ten year long nationally funded in-service teacher education project, aimed at improving elementary school mathematics. Her research interests include analogical thinking, modeling, cognitive and developmental processes in learning mathematics with a focus on learning difficulties. She is currently directing a research project funded by the Israeli Science Foundation on modeling tasks and children and teacher conceptions of the role of mathematics in problem solving.*

FK2 The Literacies of the Mathematics Learning Area

Thelma Perso - Education Queensland

Keynote **Years P - 12**

Mathematics can be considered a LOTE (Language other than English) and certainly appears quite foreign for most students. Apart from the symbolic nature of many mathematics symbols and representations, and words that infiltrate the mathematics learning environment that have different meanings elsewhere in schooling there are the genres specific to the learning area itself. Whereas once we might have believed these to be the responsibility of the English learning area they are now well and truly the responsibility of the teacher of mathematics, beginning with the language demands for Year 1 students to access the learning area right up to the presentation of a concise justification or argument in Year 12. This keynote will open your eyes (or confirm what you already know) to the literacy demands of the mathematics learning area, raise awareness of the maths/LOTE traumas that students often experience in our classrooms, and remind you that your job is not just dealing with the mathematics itself but much more.

Dr Thelma Perso *began her working life as a teacher of mathematics in Western Asutralian secondary schools for almost 20 years; 8 of those as Head of Department. Following various roles with the WA Secondary Education Authority and some part time lecturing with a number of WA universities, she was appointed the Senior Curriculum Officer for Mathematics K-12 with the WA Department of Education. Whilst undertaking these duties she also did a three year stint as President of the Mathematical Assocaiton of WA (MAWA). Following two years as Manager of Curriculum with the ACT Department of Education she commenced an appointement earlier this year as Director of Curriculum with the Education Department of Queensland. Thelma has written and edited over 30 books on various aspects of mathematics education including one on Improving Indigenous Numeracy. She is currently the immediate past President of the Australian Association of Mathematics Teachers. She was also one of a panel of five which recently undertook a national review of numeracy education in Australia for the office of Prime Minister and Cabinet.*

FK3 Linking Multiplication and Division in Helpful and Enjoyable Ways for Children

Ann Downton - Australian Catholic University

Keynote **Years 3 - 4**

Multiplication and division are important ideas in the primary years. By providing opportunities for children to build up and share a range of efficient strategies for different problem types can make teaching these topics highly enjoyable, challenging and successful in Years 3 and 4. There will be many practical examples of how young children make links between multiplication and division, for a range of problem types.

Ann Downton *lectures in Mathematics Education at Australian Catholic University (Melbourne Campus) at pre-service and Masters' levels. Prior to this she worked as a primary school teacher in both general classroom and as a part-time mathematics and science specialist for 20 years and as a private mathematics consultant. She is a co-author of Mathematics assessment for learning: Rich tasks & work samples (a joint publication between ACU and the Catholic Education Office Melbourne). Her main professional interests include the learning and teaching of mathematics in the early years, reluctant learners in the mathematics classroom and curriculum development. She is presently conducting her doctoral study relating to children's learning of multiplication.*

F4 Teachers Making a Difference at P-2

Sue Gunningham - Sue Gunningham Consultancy Services P/L

Lecture **Years P - 2**

During 2008, six primary schools in Sunbury worked together to improve the teaching and learning of maths in the Year 1/2 area. The project involved twilight professional development sessions, lesson modelling and team teaching experiences. The teachers developed and shared a range of valuable classroom activities and resources specifically for this VELS level. During this session teachers will describe their journey and showcase some of the resources they developed and some of the student work-samples they collected.

Repeated as G4

F5 The How To and Where to With ICT and an IWB in EYN!

Helen Baldock - Baden Powell College
Tania Hunt - Baden Powell College
Lisa Conibeer - Cambridge Primary School

Computer Lab **Years P - 4**

You have an interactive whiteboard and/or computers in your classroom, plus students with a range of abilities - now what? This session will show you how to find and use free online purposeful numeracy activities that are designed to engage students by using ICT and the plethora of available internet resources. You will leave the session with a variety of activities and websites that are linked to VELS and the EYN Growth Points.

Repeated as D6

F6 Early Years Mathematics Learning and Interactive Pedagogical Practices

Sharyn Livy - Victoria University

Workshop **Years P - 4**

Come and explore a range of activities to use in the early years. This is a hands-on workshop. You will leave with a repertoire of ideas and teaching strategies to support your students conceptual understanding of number.

Repeated as H5

F7 Structure: The Importance of Incorporating this Dimension Into Your Daily Program

Fotini Godeassi - Education Consultant
Rebecca Clark - Victoria University
Fiona Cavigan - Victoria University

Workshop **Years P - 6**

This workshop focuses on the importance of incorporating the dimension of structure into the daily program of mathematical experiences through examples developed for various levels (Years P-6). Participants will be provided with insights into students responses to trialled activities which demonstrate the key elements of structure as applied to concepts involving number, space, function, algebra and logic, through work samples and dialogue. As

well there will be opportunity for hands-on investigation of selected tasks/materials.
Repeated as C8

F8 Getting the Mathematical Message Out There
Janine McIntosh - Australian Mathematical Sciences Institute (AMSI)
Katelyn Haites - McKinnon Primary School
Lecture **Years P - 6**
There was no getting away from Mathematics at McKinnon Primary one week in June this year. On Monday teachers took part in a full day teacher professional development session. Thursday afternoon was time for the children to have a go and on Thursday night they brought along their parents for a family maths night. In this session, we will share the teacher, student and parent activities so that you can raise the profile of mathematics in your school.
Repeated as E7

F9 Mathematics (Numeracy) Interview and VELS, Progression Points and Mathematics Continuum – What are the Links?
Pamela Hammond - Australian Catholic University
Workshop **Years P - 8**
Is the Mathematics (Numeracy) Interview still relevant? Does it link to VELS and Progression Points? Do tasks connect to the Mathematics Continuum – an on-line resource available on the DEECD website to all (Department, Catholic, Independent schools)? Yes! Yes! Yes! This workshop will show how these links can assist planning and explore effective activities to move students forward.
Repeated as G10

F10 Education for Consumer and Financial Literacy in Schools
Social Education Victoria
Workshop **Years P - 10**
The Consumer and Financial Literacy Professional Learning Program aims to build the capacity of teachers in primary and secondary schools to engage students in consumer and financial literacy. This workshop will explore the package at different school levels and the different ways it can impact on curriculum. This workshop will mainly focus on module one which provides a context for the significant growth and interest in teaching and learning consumer and financial literacy. It includes background, rationale and purpose, and opportunities for integrating and embedding it into the existing curriculum for the compulsory years of schooling. It encourages participants to build their own pedagogical content and community partnerships for long-term sustainability.
Repeated as E9

F11 Give and Take Addition and Subtraction
Pamela Hilditch - Wodonga Primary School
Penny Hedin - Wodonga Primary School
Workshop **Years 1 - 2**
The focus will be on how one can differentiate addition and subtraction lessons to account for varying ability levels within a class. This will incorporate how assessment drives instruction and how it can assist teaching and instruction to be more effective.
Repeated as G12

F12 Addition and Subtraction Number Fact Strategies - Foundation for Mental Computation
Rosemary Irons - Queensland University of Technology
Lecture **Years 1 - 3**
Thinking strategies for learning the addition and subtraction number facts form the basis for mental computation. This session will suggest practical activities to introduce, reinforce and practice strategies for the addition and subtraction clusters of number facts. The relationship of these operations is important to provide ease in learning the strategies for immediate recall of the number facts. Confidence in number facts enables children to extend the strategies to be flexible and creative in mental computation.
Repeated as D11

F13 Making Maths Marvellous with Manchester and Manipulatives
Gabrielle West - Department of Employment, Education & Training, NT
Workshop **Years 1 - 8**
Mathematics teaching, learning and assessment can be engaging and productive for both teachers and students by using a variety of colourful tablecloths, towels, teatowels and other manipulatives. Open-ended questions and activities covered in this session will include time - clocks, elapsed time, calendars; chance/probability; number - addition/subtraction, multiplication/division, arrays, patterns and algebra; coordinates and graphing.
Notes: Bring a digital camera, if you want to to take a snap of the activity
Repeated as H10

F14 Celebrating Student Work

Douglas Williams - Black Douglas Professional Education Services

Workshop **Years 2 - 8**

The concept of this workshop is simple. We briefly get involved with a problem - enough to see something of its depth - then we look at examples of student publishing reflecting their investigation of the problem. Publishing, you will find, doesn't necessarily mean a written report. We repeat this process with another problem, and another and another, until time runs out, and each time we relate the experience to student publishing. Why?

◊ So we can celebrate students learning to work like a mathematician.
◊ So we can celebrate the teachers who encouraged them.
◊ So we can ponder ways to make our classroom a richer learning environment.

Not Repeated

F15 Mathematical Misconceptions in Years 3 and 4

Catherine Pearn - University of Melbourne

Lecture **Years 3 - 4**

Recent research into the ways students learn mathematics has highlighted many misconceptions held by students in the middle years of primary schooling. This presentation will focus on the differences in the types of strategies used by students to solve mathematical tasks and teaching strategies that can be used by classroom teachers to assist all students from Years 3 and 4 to achieve in mathematics.

Repeated as H14

F16 I Spy the Pie - Box Cars Fraction Games

Fiona Affleck - EdSource, WA
Miranda Milaszewicz - Chatham Primary School

Workshop **Years 3 - 6**

Bring fraction concepts to life for your students in a meaningful hands-on way. Teach fractions through game play developing children's understanding before they attempt algorithms. Come prepared to play and have fun, with games that teach fraction names, comparing of fractions, equivalence and trading of fractions, leading to algorithms.

Repeated as E13

F17 Bit by Bit: Putting Fractions Together

Shirley Collins - University of Waikato, New Zealand
Wendy Falconer - University of Waikato, New Zealand

Workshop **Years 4 - 6**

This is a hands-on workshop incorporating the use of equipment and practical ideas for teaching fractions. Delegates will participate in games and activities suitable for using in their classrooms.

Repeated as E16

F18 Deliberate Acts of Teaching to Develop Early Multiplicative Thinking

Charlotte Wilkinson - Wilkie Way NCWilkinsons Ltd, New Zealand

Lecture **Years 4 - 7**

Many adults know their multiplication facts but do not use multiplicative thinking. The presentation will look at deliberate acts of teaching to develop multiplicative thinking while students are learning their multiplication facts. The early multiplicative thinking provides students with strategies to assist the learning of multiplication facts. This presentation will make use of Wilkie Way Numeracy Teaching and Learning Resources. (Commercial Presentation)

Repeated as G17

F19 Frustrated by Fractions - A Practical Approach to Fractions

Anna Miller - University of Canterbury - Education Plus, New Zealand

Workshop **Years 4 - 9**

Frustrated by Fractions? Fractions are tricky. For students and teachers. A practical approach to the learning of fractions to develop conceptual understanding. Please be aware this is an interactive workshop.

Notes: Please bring along a data stick for resources.

Repeated as G19

F20 Working Mathematically: Australasian Problem Solving Mathematical Olympiads Workshop

Anne Prescott - APSMO Inc, NSW
Jon Phegan - APSMO Inc, NSW

Workshop **Years 5 - 8**

This workshop will introduce the Australasian Problem Solving Mathematical Olympiads Program and its benefits through enhancement of mathematical problem solving abilities. The Olympiads consist of a series of five contests

aimed at increasing the enjoyment and enthusiasm for mathematics through working mathematically. (APSMO Inc is a non-profit organisation – Commercial Presentation)
Notes: Please bring writing materials – but calculators are NOT allowed!
Repeated as G21

F21 Sensible Mathematics Teaching and Sensible Mathematics Learning
Len Sparrow - Curtin University, WA
Paul Swan - Edith Cowan University, WA
Workshop **Years 5 - 8**
This workshop will describe and illustrate teaching strategies in the primary classroom to help children make sense of the mathematics they are being taught. Tasks presented will be analysed as to their potential to engage children in making decisions, explaining, and connecting new knowledge to what is already known.
Repeated as D18

F22 Mathematics Through Paper Folding
Marj Horne - Australian Catholic University
Workshop **Years 5 - 8**
Paper folding fun and activities paying attention to the specific mathematical learning associated with each. The mathematics focuses particularly on geometry with some algebra and some angle measurement. Starting points are squares, A4 paper, circles and long thin strips.
Repeated as G24

F23 Interactive Whiteboards in the Mathematics Classroom
Lauren O'Grady - Edsoft Pty Ltd
Lecture **Years 5 - 9**
Do you currently have an interactive whiteboard? Or are you looking for interactive whiteboard solutions for your school? Interactive whiteboards are becoming a 'must have' in education but are they purchased for the right reasons? In this session learn about how you can use interactive whiteboards in Mathematics to increase student engagement and achievement. (Commercial Presentation)
Repeated as B25

F24 Developing Numeracy Skills Among Students with Disabilities and Learning Difficulties
Rebecca Seah - Woodridge State High, QLD
Workshop **Years 5 - 10**
With careful planning and proper scaffolding, many students with disabilities and learning difficulties can engage in multiplicative thinking. This workshop involves hands-on activities and sharing of personal experiences on teaching students with mathematics difficulties; concepts such as ratio, fractions and rational numbers that will benefit all students.
Repeated as E23

F25 Making the Most of a Good Activity
Linda Anania - TMELA Education Consultancy
Natasha McCormick - Goulburn Ovens Institute Of TAFE
Workshop **Years 5 - 12**
This session begins with an engaging challenge, based on shape and design. It then uses an Integrated Learning approach leading participants through the learning activities that could lead up to this activity and the wealth of possibilities that could be explored after it. Best Teaching and Learning practices will be identified throughout and participants will be guided in developing a mini unit during the session. Attention will be paid to learning styles, thinking strategies and to catering for all abilities within the class.
Repeated as G26

F26 Kids Teaching Kids: Student-Created Screencasts and Mathtrain.com
Eric Marcos - Lincoln Middle School, USA
Tony Richards - IT Made Simple
Lecture **Years 6 - 8**
This presentation focuses on a 'kids teaching kids' model and how it helped spark student interest and enthusiasm inside and outside the math class. Middle school students created math video lessons and collaborated via a Moodle-powered class web site, called Mathtrain.com. The student-created math videos were also the foundation and 'episodes' of the class podcast on iTunes and were posted on Mathtrain.TV, as well as YouTube, Google Video and TeacherTube.
Notes: This presentation will be conducted with Eric Marcos in the US and Tony in Melbourne.
Repeated as A30

F27 Using Some Simple but Effective Technology Free Codes/Ciphers

Peter Collins - Patterson River Secondary College

Lecture **Years 6 - 9**

The Vigenere and Playfair Ciphers are two cipher systems which were both widely used in the past for sending coded messages. With minor modifications, both can be used by Junior Secondary Students to effectively send and receive "secret" messages. This is done, as it was in the past, technology free. Although some theory will be touched on, emphasis in the session will be on mastering use of the ciphers with a view to using this as a class activity.

Notes: Participants will require an operational pen or pencil.

Repeated as E28

F28 Interactive Geometry on the ClassPad Calculator

Ian Thomson - Ormiston College, QLD

Workshop **Years 6 - 10**

Calculators such as the ClassPad are well known for their computer algebra facility. They are actually multifunctional devices, however, and have wide ranging capabilities. Participants in this workshop will gain hands-on experience in using the unique touch screen of the ClassPad to explore geometry through constructions and animations.

Notes: ClassPad calculators will be supplied for participants to use in the workshop.

Not Repeated

F29 HOTmaths – Let Me Count the Ways

Sharon London - HOTmaths, NSW

Computer Lab **Years 6 - 10**

Discover a wealth of investigations and interactive resources on the HOTmaths website and find out how teachers are using them as part of their normal teaching. For teachers, students and parents – practical, informative, motivational and effective. Curriculum-based HOTmaths includes working mathematically, investigations, animations, interactive activities, drill and practice, computer-marked assessment ideas and immediate feedback and progress reports. Also come and see examples of the exciting curriculum-based whiteboard activities embedded in the lessons throughout the HOTmaths website. (Commercial Presentation)

Repeated as E29

F30 Maths Peer Tutoring Program at Ivanhoe Girls' Grammar School

Angela Kotsiras - Ivanhoe Girls' Grammar School

Lecture **Years 7 - 9**

In this session participants will find out how a maths peer tutoring program was successfully implemented at Ivanhoe Girls' Grammar School. This weekly program allows Year 10-12 students who enjoy maths to tutor Year 7-9 students who need assistance with their maths.

Repeated as B28

F31 Planning Mathematics Units to Engage Middle Years Students

Peter Sullivan - Monash University
Carolyn Hamilton - Catholic College Bendigo
Ian McArthur - Catholic College Bendigo

Lecture **Years 7 - 9**

When planning mathematics, it is important to have clear mathematical goals, specific strategies to engage students in their learning, and a variety of challenging and interesting activities, carefully sequenced. This session presents an example of a unit on chance that was developed for Year 8 students to extend their mathematical thinking and to enhance their motivation for learning.

Repeated as G30

F32 Mathematics Pentathlon

Denis Day - Glenvale School
Subra Muniandy - Glenvale School

Workshop **Years 7 - 10**

The Mathematics pentathlon is a maths games day that can be run with an individual class or with 200+ students. It is a team based competition in which teams compete in 5 events throughout the day. It is a great activity to promote mathematics and develop relationships between students. Participants in this activity will experience the activities and learn how to conduct their own games day.

Repeated as G32

F33 An Integrated Approach to Consumer Maths

Shane O'Connor - Consumer Affairs Victoria

Daniela Baric - Consumer Affairs Victoria

Workshop **Years 7 - 10**

To be a smart consumer, young people must apply real-life maths in the marketplace. Young consumers can avoid being ripped off when choosing a mobile phone, buying a car or when using credit. Consumer Affairs Victoria produces a range of free teacher resources as part of the Consumer Education Schools Program (CESP). These resources provide a basis for an effective integrated approach to real-life maths activities. Special notice! The Maths book in the CESP series has just been updated. It now contains new units of work on responsible gambling. The activities cover probability, random and non-random chance in an engaging, informative and important context for secondary students. This new resource will be made available to participants and will be used as a reference for consumer numeracy activities in the session.

Repeated as G33

F34 Interactive Maths Series Software Training (Computer Workshop)

Paul Rehill - mathsteacher.com.au

Computer Lab **Years 7 - 10**

In this workshop, you will learn about and explore the following features of G S Rehill's Year 7-10 Interactive Maths (Second Edition) software in terms of VELS progression points:

1. The 1,222 interactive exercises accessible by students.
2. Using performance analysis tools to monitor student achievement and identify strengths and weaknesses to accelerate learning.
3. The randomised worksheet and solution sheet generator for 1,222 topics.
4. Creating reusable Revision Templates to form new miscellaneous exercises, worksheets or tests for students.
5. Exploring the software series quickly and efficiently as a teacher.

(Commercial Presentation)

Repeated as D33

F35 Maths in Sport

Ian Lowe - The Mathematical Association of Victoria

Workshop **Years 7 - 12**

The National Sports Museum, at the MCG, now has a maths trail written by MAV. It is linked to pre-visit activities and post-visit projects. This presentation will provide details. It will provide ideas for motivating classroom and out-of-class projects and investigations related to a number of sports, and will be of value to teachers who are unable to take a class of secondary students to the MCG for the NSM visit.

Repeated as B34

F36 Using Geogebra in Senior School

Peter Swain - Ivanhoe Girls' Grammar School

Emily Hui - Ivanhoe Girls' Grammar School

Computer Lab **Years 7 - 12**

A workshop on how Geogebra, a freeware program readily available from the internet, can be used to enhance student learning in the areas of geometry, algebra and calculus.

Repeated as E38

F37 Modelling Mathematical Concepts - Getting the Picture

Brian Tweed - Massey University College of Education, New Zealand

Jim Hogan - University of Waikato, New Zealand

Workshop **Years 8 - 10**

This session is about making models using materials or other representations that convey the essence of a mathematical idea. Good models foster understanding and lead to new insights. An outcome of this session is to become a better modeller of mathematical concepts.

Not Repeated

F38 Wired and Wireless Networking of TI-Nspire Devices in the Classroom

Ray Williams - St Mark's Anglican Community School

Workshop **Years 8 - 12**

This session will be a practical, hands-on activity displaying the advantages and benefits for enhanced teaching strategies when student devices are networked to the teacher.

Repeated as E40

F39 Arithmetika and Cheetah in Action

Tony Allan - RedBack Spider Publishing Pty Ltd, ACT

Computer Lab **Years 8 - 12**

Cheetah is a self-paced learning and self-assessment product for students to use at home. Arithmetika Test Designer is hundreds of ready made tests and thousands of question templates to make your own tests - for printing, with solutions automatically calculated. Arithmetika Assessment Manager is fully multi-user so the same tests are taken on a computer with all marking done for you. This workshop is an opportunity to review these three products. Each participant will receive a free 90 day license for their school. (Commercial Presentation)

Repeated as B38

F40 Learning How to Use a CAS Calculator

Hayden McQueenie - Victoria University

Chris Ly - Victoria University

Computer Lab **Years 9 - 10**

While on teaching rounds, we discovered that there were many Mathematics teachers in the lower secondary school who were still not familiar with the manipulation and integration of the CAS calculator. We were subsequently asked to run some professional development in our schools, and approached the task in the capacity as novice teachers. This unique perspective allowed us to investigate and deliver a non-threatening learning environment that covered various functions available in the CAS calculator and incorporated examples and application problems. We are DipEd students from Victoria University.

Repeated as H27

F41 Starbucks and the Mathematics of Coffee

Brett Stephenson - Guilford Young College, TAS

Workshop **Years 9 - 11**

The growth of the Starbucks and other coffee houses have been spectacular and surprisingly, quite mathematical in their growth. By considering store data and continual modelling a number of mathematical models can be made for future prediction of growth.

Repeated as G41

F42 Maths and Technology for Techno-Novices

Geoff Campbell - The MacRobertson Girls' High School

Dean Lamson - Ballarat & Clarendon College

Computer Lab **Years 9 - 12**

Many maths teachers want to make better use of ICT in their classrooms and to collaborate with their colleagues, but are unsure of how to get started; what products to use and how to use them. This session is NOT aimed at confident users who want to refine their skills, rather at those who've never had the time and/or the resources at their disposal. We will cover use of free/shareware software, such as Graphmatica and GeoGebra, as well as some of the commercial offerings, such MathType and the Efofex suite of maths software. We will also demonstrate use of interactive whiteboards, wireless keyboards and mice and datalogging equipment with Texas Instrument calculators. Examples of maths documents generated using maths software from within Word will be distributed and their construction explained. Practical suggestions for collaboration and digital organisation will be modelled and discussed. The presenters have no association with any manufacturers/distributors of the software or equipment used in the presentation but are simply demonstrating resources that they have found useful.

Notes: Please bring a USB stick so that sample resources can be distributed.

Repeated as H31

F43 A New Approach To The Conics

Hussein Tahir

Lecture **Years 9 - 12**

In this seminar I propose a new approach to the teaching of Conic Sections, one that will allow their introduction at a much earlier stage in secondary mathematics instruction. The driving force behind this approach is geometric constructions, leading to algebraic studies of the conics, where the important concepts of locus and limits grow simultaneously. This activity-based learning process is student and computer friendly which brings with it a large number of investigative projects and problem solving tasks.

Repeated as H32

F44 Exploring Functional Relations Using Computer Algebra

David Leigh-Lancaster - Victorian Curriculum & Assessment Authority (VCAA)

Computer Lab **Years 10 - 12**

This session will explore some simple functional relations that characterise symmetry and equivalence for common functions of a single real variable. The computer algebra system (CAS) Mathematica will be used to assist in these explorations. No previous experience with this CAS is required, however participants should be comfortable with

using software in a Windows environment.
Repeated as D43

F45 Teaching with TI-Nspire CAS
Bozenna Graham - Wesley College
Workshop **Years 11 - 12**
The session will run as a hands-on workshop. A few selected activities will be presented on how to use TI-Nspire CAS in a classroom: calculus, modelling and regression, algebra, dynamic geometry. It is expected that participants will have some basic familiarity with the TI-Nspire calculator.
Notes: Please bring your own TI-Nspire calculator with the latest operating system uploaded.
Not Repeated

F46 Using the Casio ClassPad CAS in Year 11 and 12 Application Tasks
Gael McLeod - Glen Waverley Secondary College
Workshop **Years 11 - 12**
This presentation will demonstrate the various calculator skills required in a Mathematical Methods CAS course that are necessary to undertake application tasks, both at Year 11 and 12. Examples of application tasks will be given and the opportunity to work through some calculator functions will be available. Some knowledge of the Casio ClassPad would be useful though this is not a prerequisite. As we use the Casio ClassPad at GWSC, this is the calculator that will be used. This is not a commercial presentation.
Repeated as C48

F47 Maths Methods Application Tasks Can be Interesting
Michael Cody - Camberwell Grammar School
Lecture **Years 11 - 12**
There is a temptation in schools to turn the application and analysis tasks into a series of topic tests rather than give the students an opportunity to display their talent (or ignorance) in relation to the content being studied. Since the VCAA has done away with providing 'themes' or specific topics it has become more difficult to be original but you would be surprised just how much has already been done that can be turned into an interesting, challenging and learning activity for students. In this session I will present one such recycled idea in detail and discuss some ideas that have been used for others.
Repeated as E48

F48 Technology Rich Investigations
Peter Fox - Elisabeth Murdoch College
Workshop **Years 11 - 12**
"The ability to transform abstract concepts into visual images is crucial for comprehending mathematics and science concepts." [Shaw, 2000] The investigations explored in this session focus on dynamic representations of a problem so students are more equipped to formulate a solution. "The computer created model is not restricted to the role of illustrating the end product, they can be part of the process of doing mathematics." [Palais, 1999]
Notes: The investigations in this session will be provided as TI-Nspire files. Hand-held devices will be available for participants that do not have their own to use.
Repeated as G49

F49 Matrices on the TI-Nspire CAS
Russell Brown - Educational Consultant
Workshop **Years 11 - 12**
Discover a variety of ways to enter and manipulate matrices on the TI-Nspire CAS handheld with reference to specific examples from VCE courses including General Mathematics, Further Mathematics and Mathematical Methods CAS. This hands-on session will cover solving simultaneous equations using matrix methods, matrix arithmetic, determinants, singular matrices and unique solutions, the correlation matrix for finding r-values from lists and Markov chains (Initial State, Transition and Steady State matrices).
Notes: Loan calculators will be available if required.
Repeated as E50

F50 Algebraic and Geometric Approaches To Finding {z : arg(z - z^1) + arg(z - z^2) = theta}
John Kermond - Haileybury College
Lecture **Years 12 - 12**
The subset of the complex plane defined by {z : arg(z - z^1) + arg(z - z^2) = theta} can describe either a pair of hyperbolic arcs, a pair of rays or a mutually perpendicular line and line segment pair. Geometric and algebraic approaches to finding these subsets are presented. Quasi-general and specific examples are discussed in detail, the general case is examined and a general taxonomy is given.
Repeated as A53

SESSION DETAILS
SESSION G: 12:00pm - 1:00pm Friday 5th December

GK1 Innovations in Mathematics, Science and Technology Teaching

Konrad Krainer - University of Klagenfurt, Germany

Keynote **Years P - 12**

The presentation focuses on the goals, activities and outcomes of the Austrian reform project IMST – Innovations in Mathematics, Science and Technology Teaching (since 2000). In particular, various ways are shown how mathematics teachers – in connection with teachers of other subjects – are supported in their efforts to improve their practice.

Konrad Krainer *(currently guest at Monash University) is a professor at the University of Klagenfurt and leads the Austrian National Initiative IMST (Innovations in Mathematics, Science and Technology Teaching, 2000-2009). He is a Founding Member of the Board of the European Society for Research in Mathematics Education (responsible for establishing a Summer School for Young Researchers) and gave a Regular Lecture at ICME 8 and a Plenary lecture (Co-Presenter) at ICME 10. He is an Associate Editor of JMTE and Co-Editor of the International Handbook of Mathematics Teacher Education. His research interests are mathematics teacher education, school development and educational system development.*

GK2 Dynamic Mathematics at Early Grades with Cabri Elementary

Jean-Marie Laborde - Cabrilog - Grenoble University, France

Keynote **Years 3 - 7**

Dynamic geometry systems, introduced some 20 years ago, have been the start of profound changes in the way geometry is taught today in most of the schools worldwide. In many places it has even renewed for many teachers their willingness to devote a substantial part of their teaching to geometry. Today the benefits of DGS are extended throughout the entire mathematics curriculum. Some years ago we started a project involving a new generation of Dynamic Mathematical Environment, Cabri Elementary. It actually focuses on primary education. In this presentation I will discuss the initial issues as well as the results of the first actual classroom experiments made in various locations.

Jean-Marie Laborde *graduated in mathematics from the Ecole Normale Supérieure in Paris. He was already interested in Computer Sciences and started to work at the CNRS in the Laboratory for Computer Sciences and Applied Mathematics (IMAG) at the University of Grenoble (France). He got the French Title of Docteur d'Etat in 1977 in Mathematics. He devoted his research efforts to the use of geometric methods for the study of different classes of graphs, especially hypercubes. His interests also included automatic theorem proving. In 1981 he and a group of French scholars started the Cabri-project, initially as an environment for Graph-Theory. In 1982 he founded the Laboratory for Discrete Mathematics and Research in Mathematics Education at Grenoble University (A joined laboratory with CNRS, the French National Center for Scientific Research). He taught Mathematics and Computer Sciences, he has been appointed as university professor in France and in Germany; he has been lecturing at numerous universities around the world including France, Italy, Belgium, Spain, Portugal, Switzerland, Germany, Great Britain, former Soviet Union, Russia, Lithuania, China, Taiwan, Japan, Korea, Australia, New Zealand, USA, Canada, Czech Republic, Poland, Chile, Venezuela, Colombia, Mexico, Brazil, Argentina, Algeria, Tunisia, Cameroon, Mali and many more. In 1985 with a number of students and young researchers, he started the Cabri-Geometry project, a "Cahier de Brouillon Interactif" or sketchpad for geometry. In 1988 the first Cabri-géomètre was nominated as the Educational Software of the year by Apple. Jean-Marie was later Research Director*

at the CNRS and the Head of the Cabri-geometry Project a collaborative IMAG-Texas-Instruments project, where more than 25 are involved at the University of Grenoble (Universté Joseph Fourier). In the meantime he devotes his efforts to the spread of the SW Cabri-géomètre, nowadays sold worldwide and more than 50 million copies, including in handheld devices by Texas Instruments, the TI-92-Voyage 200, the TI-89-Titanium, the TI-83 and 84s with Cabri Junior. In 2000 Jean-Marie founded the start-up company Cabrilog, a spin-off of University J. Fourier and CNRS. From June 2000 to June 2004 he was working for CNRS at Cabrilog and since then he has devoted his activities to Cabrilog and the development of Cabri-Technology. Today, with up to 30 collaborators, Cabrilog continues its worldwide development with new products including a special version of Cabri for 3D geometry. Cabrilog is working within a strategic alliance with Texas Instruments. Cabrilog has organized several international scientific conferences about the development and the use of Cabri SW (CabriWorld and IberoCabri, in São Paulo (Brazil), Montreal (Canada), Santiago de Chile, Saltillo (Mexico), Roma (Italy), Bogota (Colombia)). Jean-Marie is a member of numerous scientific committees, he has directed more than 15 PhD students, working in discrete mathematics and in CAI (Computer Aided Instruction). He is the author of more than 80 scientific papers at an international level.

GK3 Improving Middle School Students' Proportional Reasoning

Kim Beswick - University of Tasmania

Keynote **Years 5 - 8**

Proportional reasoning underpins understandings of fractions, decimals and percent which are the focus of mathematics in the middle years and which present difficulties for many students. This session presents examples of student work that illustrate a range of understandings and describes how teachers can use such data to inform teaching.

Kim Beswick *taught mathematics for 13 years in Tasmanian secondary schools before moving to the University of Tasmania where she is currently a Senior Lecturer in Mathematics Education. She has research interests in professional learning for teachers of mathematics, the nature and extent of knowledge required for effective teaching of mathematics, and mathematics teachers' beliefs and their impacts on classroom practices. Kim is a registered teacher and regularly contributes to professional learning for teachers of mathematics. She is a longstanding member of the Mathematical Association of Tasmania (MAT) and is currently Co-Editor of Australian Primary Mathematics Classroom.*

G4 Teachers Making a Difference at P-2

Sue Gunningham - Sue Gunningham Consultancy Services P/L

Lecture **Years P - 2**

During 2008, six primary schools in Sunbury worked together to improve the teaching and learning of maths in the Year 1/2 area. The project involved twilight professional development sessions, lesson modelling and team teaching experiences. The teachers developed and shared a range of valuable classroom activities and resources specifically for this VELS level. During this session teachers will describe their journey and showcase some of the resources they developed and some of the student work-samples they collected.

Repeated as F4

G5 Strategies For Enhancing Number Sense

Douglas Williams - Black Douglas Professional Education Services

Workshop **Years P - 3**

Drawing for the most part on the Calculating Changes project we will use a range of activities to illustrate how teachers have been able to enhance children's number sense beyond what is usually expected for their age. What features of these activities are likely to encourage learning? What learning happens? How are these strategies likely to influence the students' confidence in their own number sense? You will learn a few things you can 'use tomorrow' and, more importantly, where you can find information to continue your exploration. To the extent that you consider the connection with the Calculating Changes project to be commercial, this could be interpreted as a commercial presentation.

Not Repeated

G6 Rolling In the Dough

Fiona Affleck - EdSource, WA

Miranda Milaszewicz - Chatham Primary School

Workshop **Years P - 4**

There are few resources available to teach children the concepts of coin value and recognition, counting patterns of money, trading of coins, equivalent coin values and operations using money. Children love games and they love money and Box Cars bring the two together for simple, fun and focused learning with real life connections and problem solving. Come prepared to play with our money dice and be amazed at the skills and concepts that can be taught, assessed and reinforced with Box Cars money games. (Commercial Presentation)

Repeated as H4

G7 Student Maths Packs and Class Take Home Maths Activity Bags

June Penney - Darley Primary School

Roger Suter - Darley Primary School

Workshop **Years P - 4**

At Darley Primary School we have developed a 'Maths Pack or Maths Tool Box' for each child. The contents of the pack is added to each year and goes with the child from year to year. The pack contains basic items like dice, counters and number charts. It is designed for regular use to develop number skills and concepts. As part of our Family Maths Program we have also made 'Class Take Home Maths Activity Bags' which are used across the school. These bags contain games and activities for children and families to share at home. There is a journal for recording comments and adding photos or drawings about their experiences. In this session we explain how we went about setting these up. We will also look at the contents of the packs and the different ways to use the equipment to develop number skills, number strategies and number concepts. This session will be suitable for Primary Teachers Prep to 6 (with emphasis on Lower Primary).

Notes: We can send reproducable pages via emails or if people bring memory sticks we can load reproducable pages on the day.

Repeated as E4

G8 Nelson Teaching Interactives for Interactive Whiteboards

Brian Lannen - Cengage Learning Australia (Thomson / A+ Publishing)

Lecture **Years P - 6**

"Nelson Teaching Interactives for Interactive Whiteboards" is a set of interactive software tools designed for teacher use on interactive whiteboards. Written to reflect Australian P-6 Mathematics curriculum, there is one set of 24 interactives for each year level from P to 6 and they are arranged in groups of Number, Space, Measurement and Chance. (Commercial Presentation).

Not Repeated

G9 Finding Better Ways

Aaron Peeters - Kingsbury Primary School

Alicia Sibly - Kingsbury Primary School

Workshop **Years P - 6**

Teachers from Kingsbury Primary School will tell their story of how Action Research was used to improve pedagogy and student outcomes. This session will explain how we used Action Research, draw comparisons between our past and current practice an present ways of planning that balance pedagogy and curriculum.

Repeated as H8

G10 Mathematics (Numeracy) Interview and VELS, Progression Points and Mathematics Continuum – What are the Links?

Pamela Hammond - Australian Catholic University

Workshop **Years P - 8**

Is the Mathematics (Numeracy) Interview still relevant? Does it link to VELS and Progression Points? Do tasks connect to the Mathematics Continuum – an on-line resource available on the DEECD website to all (Department, Catholic, Independent schools)? Yes! Yes! Yes! This workshop will show how these links can assist planning and explore effective activities to move students forward.

Repeated as F9

G11 Crafting Learning Activities for Individual Students or a Whole Class

Tony Collison - School Software

Computer Lab **Years P - 8**

A hands-on demonstration that highlights the process of creating activities that cater for individual and group needs in mathematics and languages. The process is simple, flexible, time saving and allows for the incorporation of syllabus outcomes. The software allows you to develop an endless supply of quality resources. (Commercial Presentation)

Repeated as B10

G12 Give and Take Addition and Subtraction
Pamela Hilditch - Wodonga Primary School
Penny Hedin - Wodonga Primary School
Workshop **Years 1 - 2**
The focus will be on how one can differentiate addition and subtraction lessons to account for varying ability levels within a class. This will incorporate how assessment drives instruction and how it can assist teaching and instruction to be more effective.
Repeated as F11

G13 Developing Algebraic Thinking within a Primary School Setting
Will Windsor - Griffith University, QLD
Workshop **Years 1 - 6**
Algebra is a dynamic mathematical tool and can be a unifying theme for teachers of primary school mathematics. By using arithmetical and geometrical hands-on activities, children can develop the ability to interpret, translate, and ultimately develop a meaningful understanding of algebra.
Notes: Please bring a simple 4 function calculator to this session.
Repeated as H9

G14 Beating the Groan
Marcus Finlay - Westbreen Primary School
Lecture **Years 2 - 8**
How do we combat negative perceptions of maths in our classrooms? This is an old chestnut that has been beaten about for years. This session follows one teacher's journey to turn groans into grins and will provide some practical examples of genuine and engaging real world tasks with links to other subject areas.
Repeated as H13

G15 Fantastic Folding Feats
Allan Turton - Origo Education
Workshop **Years 3 - 8**
This hands-on workshop will engage participants in activities to create familiar two-dimensional shapes by folding metric paper. The simple steps (easier than origami) yield some fascinating patterns and designs. Used in classrooms, students learn about the properties of the shapes they are making and combining.
Not Repeated

G16 An Even Start - National Tuition Program
Catherine Pearn - University of Melbourne
Ray Peck - Australian Council for Educational Research (ACER)
Lecture **Years 3 - 9**
An Even Start - National Tuition Program is a DEEWR program developed in conjunction with ACER and is designed for students who are below national numeracy benchmarks at Years 3, 5, 7 and 9. The Tutor Kit CD was mailed to all schools in 2008. It consists of a diagnostic pre-test, a tuition advice program linked to supportive interactive resources and a post-test. This session will discuss the design behind the program and demonstrate how it works. Hopefully, participants will receive a copy of the An Even Start Tutor Kit CD.
Not Repeated

G17 Deliberate Acts of Teaching to Develop Early Multiplicative Thinking
Charlotte Wilkinson - Wilkie Way NCWilkinsons Ltd, New Zealand
Lecture **Years 4 - 7**
Many adults know their multiplication facts but do not use multiplicative thinking. The presentation will look at deliberate acts of teaching to develop multiplicative thinking while students are learning their multiplication facts. The early multiplicative thinking provides students with strategies to assist the learning of multiplication facts. This presentation will make use of Wilkie Way Numeracy Teaching and Learning Resources. (Commercial Presentation)
Repeated as F18

G18 Connecting The Dots: Towards Better Understanding
Jan Cavanagh - Making Sense of Maths, QLD
Workshop **Years 4 - 8**
This workshop will focus on thinking, reasoning and working mathematically with hands-on learning and practical activities. Participants will experience a set of activities suitable for rotational groups or whole class lessons. These will involve active participation in number and spatial problem solving, including concepts of patterns, and 2D and

3D shapes.
Not Repeated

G19 Frustrated by Fractions - A Practical Approach to Fractions
Anna Miller - University of Canterbury - Education Plus, New Zealand
Workshop **Years 4 - 9**
Frustrated by Fractions? Fractions are tricky. For students and teachers. A practical approach to the learning of fractions to develop conceptual understanding. Please be aware this is an interactive workshop.
Notes: Please bring along a data stick for resources.
Repeated as F19

G20 New Interactive Resources for Grades 5 and 6
Paul Negri - Highvale Secondary College
Alan Brookes - Highvale Secondary College
Computer Lab **Years 5 - 6**
Mathstrack is now developing a range of innovative and interactive maths resources suitable for students at Grade 5 and 6. A number of new resources will be shown in this session. Suggestions, comments and discussions will be welcomed. These resources (and others) will be made available for teachers to trial and evaluate from the start of 2009. (Commercial Presentation)
Repeated as C19

G21 Working Mathematically: Australasian Problem Solving Mathematical Olympiads Workshop
Anne Prescott - APSMO Inc, NSW
Jon Phegan - APSMO Inc, NSW
Workshop **Years 5 - 8**
This workshop will introduce the Australasian Problem Solving Mathematical Olympiads Program and its benefits through enhancement of mathematical problem solving abilities. The Olympiads consist of a series of five contests aimed at increasing the enjoyment and enthusiasm for mathematics through working mathematically. (APSMO Inc is a non-profit organisation – Commercial Presentation)
Notes: Please bring writing materials – but calculators are NOT allowed!
Repeated as F20

G22 How Connected are Gears, Ratios and Fractions?
Debora Lipson - Victoria University
Workshop **Years 5 - 8**
The recent introduction of robotics in schools has allowed students and teachers access to a range of educational potential embedded in this medium. However, it has been observed that often there is not a considered inclusion of gears in most constructions. This appears to be attributed to either the lack of appreciation for the maths associated with gears, or the lack of understanding of fractions and ratios. This presentation will cover the results from a recent research project and allow an opportunity for experiential learning through some hands-on play, examining ratios and fractions while building a compound gear configuration.
Notes: Please bring your TI CAS calculator or one will be provided.
Repeated as H18

G23 Open Ended Tasks in Number
Leonie Anstey - Department of Education & Early Childhood Education (DEECD) - Gippsland Region
Workshop **Years 5 - 8**
This session will explore a range of open ended tasks to cater for mixed abilities in your classroom in number. The focus will be on both additive and multiplicative thinking.
Repeated as E20

G24 Mathematics Through Paper Folding
Marj Horne - Australian Catholic University
Workshop **Years 5 - 8**
Paper folding fun and activities paying attention to the specific mathematical learning associated with each. The mathematics focuses particularly on geometry with some algebra and some angle measurement. Starting points are squares, A4 paper, circles and long thin strips.
Repeated as F22

G25 What is new on the Mathematics Domain Page?

Helen Gist - Department of Education, Early Years Childhood Development
Clyde Juriansz - Department of Education & Early Childhood Education (DEECD)

Workshop **Years 5 - 10**

The Mathematics Domain page on the DEECD Student Learning website offers a wealth of resources to support teaching and learning. Come to the presentation to learn about the 'Teaching Secondary Mathematics' professional learning resources and the 'Fractions and Decimals Interview'. Find out how you can use these resources to build teacher capacity and student learning at your school.

Notes: New resources will be highlighted during the presentation, including the Mathematics Fractions and Decimals interview, and the Teaching Secondary Mathematics professional learning resource.

Not Repeated

G26 Making the Most of a Good Activity

Linda Anania - TMELA Education Consultancy
Natasha McCormick - Goulburn Ovens Institute Of TAFE

Workshop **Years 5 - 12**

This session begins with an engaging challenge, based on shape and design. It then uses an Integrated Learning approach leading participants through the learning activities that could lead up to this activity and the wealth of possibilities that could be explored after it. Best Teaching and Learning practices will be identified throughout and participants will be guided in developing a mini unit during the session. Attention will be paid to learning styles, thinking strategies and to catering for all abilities within the class.

Repeated as F25

G27 Having Some Fun with Numeracy and Maths

Dave Tout - CAE & Multifangled

Workshop **Years 5 - Adult**

This popular, hands-on workshop will enable participants to experience a range of activities suitable for classroom use. The activities have been developed for adult numeracy students but are suitable for all students, especially middle years and VCAL students. The activities focus on the development of maths skills through approaches such as co-operative group work and the use of hands-on materials, as well as on enjoyment and having fun with maths. [Based on resources available through CAE, a not-for-profit educational organisation]

Repeated as E26

G28 Learning and using Geometers SketchPad

Jessica Wagner - Victoria University
Hagir Eltayeb - Victoria University

Computer Lab **Years 6 - 8**

Although Geometers SketchPad has been around for many years we have discovered that, for many reasons, there are still many teachers who do not use this package. As part of our learning to teach we approached learning about the manipulation and use of this package from a beginners perspective. As such we discovered many interesting features of using and integrating this package. In this workshop we will cover how Geometers SketchPad works and use some practical examples and problem solving activities to enable learning in a simple way. We are DipEd students from Victoria University.

Repeated as E27

G29 Bringing Digital Photography Into Learning Focus

Damian Howison - MacKillop College
Chris MacDonald - MacKillop College

Workshop **Years 7 - 8**

This session will be centred on at least two rich lessons that stimulate and promote thoughtful mathematical discussion within the classroom. Digital photography, simple PowerPoint skills, and simple questioning have been used within three Maths300 lessons - Algebra Walk, Newspaper Shapes and Pentagon Triangles - to develop follow-up lessons that promote discussion and thinking, as well as heightened engagement and appreciation from students. Material will support the dimensions of Space, Structure and Working Mathematically.

Not Repeated

G30 Planning Mathematics Units to Engage Middle Years Students

Peter Sullivan - Monash University
Carolyn Hamilton - Catholic College Bendigo
Ian McArthur - Catholic College Bendigo

Lecture **Years 7 - 9**

When planning mathematics, it is important to have clear mathematical goals, specific strategies to engage students in their learning, and a variety of challenging and interesting activities, carefully sequenced. This session presents

an example of a unit on chance that was developed for Year 8 students to extend their mathematical thinking and to enhance their motivation for learning.
Repeated as F31

G31 Classroom Organising, Topic Planning and Student Tracking AND Reducing Teacher Workload
Bill Murray - Mentone Girls' Secondary College
Lauren James - Mentone Girls' Secondary College
Computer Lab **Years 7 - 10**
The classroom organiser, topic planner and student tracker is a system that has an overarching objective - To enable teachers to improve the methods they employ to meet the needs of individual students in the classroom, provide evidence of their progress and communicate effectively with all of the stakeholders. To do all of this while creating a significant reduction in teacher workload in the organising, planning and tracking processes that we are all supposed to use. This program is currently being developed by teachers for teachers and this is your chance to come along and give us feedback on the development so far. (Commercial Presentation)
Notes: Bring a topic plan with you.
Repeated as D29

G32 Mathematics Pentathlon
Denis Day - Glenvale School
Subra Muniandy - Glenvale School
Workshop **Years 7 - 10**
The Mathematics pentathlon is a maths games day that can be run with an individual class or with 200+ students. It is a team based competition in which teams compete in 5 events throughout the day. It is a great activity to promote mathematics and develop relationships between students. Participants in this activity will experience the activities and learn how to conduct their own games day.
Repeated as F32

G33 An Integrated Approach to Consumer Maths
Shane O'Connor - Consumer Affairs Victoria
Daniela Baric - Consumer Affairs Victoria
Workshop **Years 7 - 10**
To be a smart consumer, young people must apply real-life maths in the marketplace. Young consumers can avoid being ripped off when choosing a mobile phone, buying a car or when using credit. Consumer Affairs Victoria produces a range of free teacher resources as part of the Consumer Education Schools Program (CESP). These resources provide a basis for an effective integrated approach to real-life maths activities. Special notice! The Maths book in the CESP series has just been updated. It now contains new units of work on responsible gambling. The activities cover probability, random and non-random chance in an engaging, informative and important context for secondary students. This new resource will be made available to participants and will be used as a reference for consumer numeracy activities in the session.
Repeated as F33

G34 I Didn't Know You Could Do That: Dynamic Algebra on the TI-Nspire
Stephen Arnold - Compass Learning Technologies, NSW
Workshop **Years 7 - 12**
This hands-on workshop focuses on some of the lesser-known features of the TI-Nspire CAS as a teaching and learning tool for algebra across the secondary years. In particular, we learn how to make full use of the dynamic algebra capabilities of the Lists & Spreadsheet application from the early years through to calculus.
Notes: Bring along your own TI-Nspire CAS handheld or laptop with TI-Nspire software installed, or use a device supplied at the workshop.
Repeated as A39

G35 Geogebra - Exploring Geometry
Theresa Pagon - Jacaranda (John Wiley & Sons)
Cameron Hallowell - Jacaranda (John Wiley & Sons)
Computer Lab **Years 7 - 12**
Geogebra is an open source (free application) which provides teachers and students with a software package for displaying and manipulating graphs and geometry objects. Powerful and easy to use, its dynamic nature makes it a great tool to explore mathematical concepts. This is an introductory session for teachers with little or no knowledge of Geogebra.
Repeated as B36

G36 Effective Secondary Teaching About the Mathematics of Gambling

Donald Smith - Victoria University

Workshop **Years 8 - 10**

Modelling effective teaching at a junior secondary level about the mathematics of gambling, gives understanding why it is not possible to win on the pokies in the long run. Involving you, hands-on, concrete teaching and follow-up activities demonstrating the key concepts affecting gambling outcomes will be exemplified. Relates to option "How Should We Teach About the Mathematics of Gambling? A Discussion".

Not Repeated

G37 Graphing Calculators And Assessment

Jeyaletcumi Muthiah - Sekolah Menengah Tunku Puan Habsah, Malaysia

Lecture **Years 9 - 10**

Calculator Technology has advanced from a simple calculator to scientific calculator and then to graphing calculator technology. In fact many researches had demonstrated the ability of graphing calculator (GC). The subject of interest here is how to use this GC effectively in the classroom teaching and learning practice and eventually in assessment. The aim of mathematics at High School level should be on higher cognitive levels of thinking (analysing, synthesizing and evaluating). The GC use is not just limited to calculation purposes only, but also enhances higher order thinking skills if the assessment is designed carefully. The important points highlighted are, manual calculation is very time consuming, tedious and uses approximated values from the statistical table. So GC should be allowed to do this routine calculation so that the focus of the question is to ensure a student interprets, analyses and give reasons, evaluate the solution obtained critically and make the right decision with the help of GC as a thinking tool. This study uses the TI-84 Plus as a powerful exploration tool. This study also demonstrates how assessment questions can be modified to ensure students think aloud before pushing the buttons. Assessment or assignment questions of higher order thinking skills with a reasonable marking scheme or rubric can be used in the evaluation process. The special note is, `If technology is used to teach a course then technology should be used in the assessment process'.

Not Repeated

G38 Dynamic Geometry Enriching Curriculum Materials for Middle Secondary School Mathematics

Kaye Stacey - Melbourne Graduate School Of Education

Robyn Pierce - University Of Melbourne

Computer Lab **Years 9 - 10**

This hands-on session will show how Geogebra can be used to support the use of real world contexts for mathematics in the middle secondary years. Geogebra is a free and multi-platform dynamic geometry-algebra-calculus program. Dynamic geometry linked to real world images or used to create dynamic simulations enables students to collect data and to gain mathematical understanding through exploration using multiple representations. Adding colour, movement and interaction can impact on students' general attitude towards studying mathematics.

Notes: This session will be held in a computer lab with software provided. Alternatively, participants can use their laptops if they install in advance Geogebra from http://www.geogebra.org/cms/.

Repeated as H29

G39 Teaching Sustainability Concepts Using Online Tools

Lauren Baird - Synergetics Environmental Engineering

David Collins - Synergetics Environmental Engineering

Computer Lab **Years 9 - 10**

This option will demonstrate the use of interactive online calculators and tools to teach concepts of population, energy capture and other important sustainability theories. These tools have been developed and released for free to the public by a not-for-profit climate change organisation, Stop the Black Balloons, and will be run in computer labs.

Not Repeated

G40 Project Based Learning in the 21st Century

Lyn McGoldrick - Ringwood Secondary College

Joanne Roughan - Pembroke Secondary College

Lecture **Years 9 - 10**

'Project based learning' is designed to put students into a students-as-workers setting where they have the opportunity to develop 21st Century skills such as collaboration, written and oral communication and critical thinking while covering VELS. This is an account of my experience with implementing an extended Project Based Learning task with my Year 9 mathematics class.

Repeated as D37

G41 Starbucks and the Mathematics of Coffee

Brett Stephenson - Guilford Young College, TAS

Workshop **Years 9 - 11**

The growth of the Starbucks and other coffee houses have been spectacular and surprisingly, quite mathematical in their growth. By considering store data and continual modelling a number of mathematical models can be made for future prediction of growth.

Repeated as F41

G42 Activities to Get Started on the TI-Nspire CAS

David Greenwood - Trinity Grammar School

Sylvia Michaels - Trinity Grammar School

Workshop **Years 9 - 11**

This workshop will explore the use of TI-Nspire CAS technology in a number of mathematical activities for Years 9-11 Mathematics. Participants will become familiar with the functionality of the calculator but also use the technology to work on a number of tasks which could be posed as activities for students in any mathematics class room. Activities relate to areas in Algebra, Graphs, Statistics and Geometry.

Notes: Calculators will be supplied.

Repeated as D40

G43 The Use of the Casio ClassPad 300 at Year 10

Mark Nesbitt - Rutherglen High School

Greg Barras - Rutherglen High School

Workshop **Years 9 - 11**

The session will be based around how to use the Casio ClassPad 300 in a Year 10 program. There will be opportunities to use the ClassPad in this session as well as discuss Rutherglen High School's (Pilot Maths Methods CAS School) introduction of a CAS system.

Repeated as B41

G44 The Limitless Performance Program

Jack Delosa - Limitless - Break Free

Workshop **Years 9 - 12**

The Limitless Performance Program gives teachers and academics insight into how they can heighten student engagement. Using world-class performance strategies, Jack Delosa gives teachers the skills and strategies needed in order to ensure their students are not just enrolled, but emotionally engaged and excited. This gives teachers the edge through ensuring the active involvement of their students.

Repeated as H33

G45 TI-Nspire CAS Calculators for Beginners

Shirly Griffith - Jacaranda (John Wiley & Sons)

Pauline Holland - Korowa Anglican Girls' School

Workshop **Years 9 - 12**

This workshop will provide novice users of the TI-Nspire CAS calculator with a step-by-step guide to using it effectively in the classroom. (Commercial Presentation).

Notes: If you have a TI-Nspire CAS calculator, then bring it along. Please ensure that Operating System 1.4 is loaded. Otherwise, a calculator will be provided to each participant.

Repeated as H34

G46 Fathom, Autograph and Tablet PCs in Teaching Maths

Liz Bailey - La Trobe International College

Lecture **Years 10 - 12**

After last year's MAV conference I was inspired (by Frank Moya's recommendation) to attend the six day technology conference at Phillips Exeter Academy in New Hampshire in June this year. I was impressed by the use of technology that I hadn't come across before, or at least not in such depth. Since my return I have purchased a Tablet PC to use in my teaching and am now incorporating software such as Fathom and Autograph to help clarify concepts for my students. This is particularly important for our students who have limited language skills so a visual medium is very powerful in aiding their understanding. As the year progresses I would also like to include podcasts and wikis if possible. This session will give participants a taste of these technologies and how I have used them in a classroom setting, as well as sharing resources I obtained in the US.

Repeated as H35

G47 How do the Lessons Learned from my Experience at ICME-11 in Monterrey this Year Reflect the Issues with CAS Here in Victoria?

Sue Garner - Ballarat Grammar School

Lecture **Years 10 - 12**

The 11th International Congress on Mathematical Education was held in Monterrey, Nuevo Leon, Mexico in July of 2008. It was a privilege to experience internationally renowned researchers and speakers on a wide range of topics of interest to the teaching and learning of mathematics. In particular, the current issues that face Victorian teachers with the introduction of Computer Algebra Systems into their classrooms were reflected in many of the presentations. In this session I will attempt to link the ideas raised on the international stage at ICME-11 with the benefits and problems with technology, in particular with CAS, that may face us all in our classrooms in Victoria.

Not Repeated

G48 Interesting Tips for Solving Challenging Further Maths Exam 2 Questions

Hatice Mohamed - Isik College

Lecture **Years 11 - 12**

Some challenging questions which are similar to the Further Maths Exam 2 questions will be solved. Some tips on solving difficult questions in Further Maths will be given. The questions will be handed out and the tips will be presented with a PowerPoint presentation.

Notes: Bringing a Casio ClassPad 330 calculator will be of assistance.

Not Repeated

G49 Technology Rich Investigations

Peter Fox - Elisabeth Murdoch College

Workshop **Years 11 - 12**

"The ability to transform abstract concepts into visual images is crucial for comprehending mathematics and science concepts." [Shaw, 2000] The investigations explored in this session focus on dynamic representations of a problem so students are more equipped to formulate a solution. "The computer created model is not restricted to the role of illustrating the end product, they can be part of the process of doing mathematics." [Palais, 1999]

Notes: The investigations in this session will be provided as TI-Nspire files. Hand-held devices will be available for participants that do not have their own to use.

Repeated as F48

G50 Shape Up!

Ruth Goddard - CAE, Glenroy Neighbourhood Learning Centre

Workshop **Years VCAL - Adult**

A collection of geometry activities which are hands-on and engaging for a range of abilities.

Repeated as H41

SESSION DETAILS

SESSION H: 2:00pm - 3:00pm Friday 7th December

HK1 Identifying Problem Solving in School Mathematics: Students' and Teachers' Perspectives

Judy Anderson - University of Sydney, NSW

Keynote **Years P - 10**

Most teachers believe learning how to solve problems is an important goal, and report teaching problem solving in mathematics lessons. Some students have different views about what occurs in mathematics lessons. These inconsistencies may be a consequence of different understandings about the purpose of school mathematics and what constitutes problem-solving activity.

***Judy Anderson** has extensive experience as a secondary mathematics teacher and university lecturer in pre-*

service and in-service mathematics education at both the primary and secondary levels. She is a senior lecturer at the University of Sydney and an active researcher in the field of teachers' beliefs and practices. She is committed to supporting teachers' professional learning and in her role as President of the Australian Association of Mathematics Teachers in 2008-9, she will assume an advocacy role in promoting quality teaching and learning in mathematics. Ongoing partnerships with schools and systems have enabled her to investigate the impact of curriculum change on practice as well as to explore students' engagement and motivation in mathematics in the middle years of schooling.

HK2 Theorems by Theatre

Marty Ross
Burkard Polster - Monash University

Keynote **Years P - 12**

What mathematics can you do with a stage and some hammy theatrics? Come along and find out as Burkard and Marty try something new. Watch them make fools of themselves as they attempt proofs by playacting, mathematical mime, and vectorial ventriloquism.

***Burkard Polster and Marty Ross** are Melbourne's tag team of mathematics. They write the Maths Masters column for The Education Age. And, for the past 7 years, they have been delivering public lectures for the MAV at the Melbourne Museum. Their various activities can be checked out at www.qedcat.com.*

H3 Many Ways to Make the Connections

Jan Cavanagh - Making Sense of Maths

Workshop **Years P - 3**

This session will focus on some practical, active models to keep the fun in early number learning. The power of pattern, and visual models make the concepts more accessible to young learners.

Not Repeated

H4 Rolling In the Dough

Fiona Affleck - EdSource, WA
Miranda Milaszewicz - Chatham Primary School

Workshop **Years P - 4**

There are few resources available to teach children the concepts of coin value and recognition, counting patterns of money, trading of coins, equivalent coin values and operations using money. Children love games and they love money and Box Cars bring the two together for simple, fun and focused learning with real life connections and problem solving. Come prepared to play with our money dice and be amazed at the skills and concepts that can be taught, assessed and reinforced with Box Cars money games. (Commercial Presentation)

Repeated as G6

H5 Early Years Mathematics Learning and Interactive Pedagogical Practices

Sharyn Livy - Victoria University

Workshop **Years P - 4**

Come and explore a range of activities to use in the early years. This is a hands-on workshop. You will leave with a repertoire of ideas and teaching strategies to support your students conceptual understanding of number.

Repeated as F6

H6 Online Resources for the Mathematics Classroom

Kerry Rowett - Victorian Education Channel, DEECD

Computer Lab **Years P - 6**

In this workshop, participants will explore online resources related to Mathematics that Victorian teachers have recommended to the Victorian Education Channel - a DEECD website. A practical and easy-to-follow session that will assist participants to locate and use great websites, interactive resources, animations and videos to support Mathematics classes.

Not Repeated

H7 Maximising Success for Children Using Rotational Activities
Kim Kirkpatrick - Kennington Primary School
Sherilyn Butler - Kennington Primary School
Workshop **Years P - 6**
Using rotational maths groups allows the teacher to focus on a small group of students while giving the other students a chance to share strategies and learn from their peer. Kim and Sherilyn will share ideas for rotational group activities, how to plan and assessment strategies. Hands-on activities.
Repeated as D10

H8 Finding Better Ways
Aaron Peeters - Kingsbury Primary School
Alicia Sibly - Kingsbury Primary School
Workshop **Years P - 6**
Teachers from Kingsbury Primary School will tell their story of how Action Research was used to improve pedagogy and student outcomes. This session will explain how we used Action Research, draw comparisons between our past and current practice an present ways of planning that balance pedagogy and curriculum.
Repeated as G9

H9 Developing Algebraic Thinking within a Primary School Setting
Will Windsor - Griffith University, QLD
Workshop **Years 1 - 6**
Algebra is a dynamic mathematical tool and can be a unifying theme for teachers of primary school mathematics. By using arithmetical and geometrical hands-on activities, children can develop the ability to interpret, translate, and ultimately develop a meaningful understanding of algebra.
Notes: Please bring a simple 4 function calculator to this session.
Repeated as G13

H10 Making Maths Marvellous with Manchester and Manipulatives
Gabrielle West - Department of Employment, Education & Training, NT
Workshop **Years 1 - 8**
Mathematics teaching, learning and assessment can be engaging and productive for both teachers and students by using a variety of colourful tablecloths, towels, teatowels and other manipulatives. Open-ended questions and activities covered in this session will include time - clocks, elapsed time, calendars; chance/probability; number - addition/subtraction, multiplication/division, arrays, patterns and algebra; coordinates and graphing.
Notes: Bring a digital camera, if you want to to take a snap of the activity.
Repeated as F13

H11 Children Making Mathematical Connections Through Solving Their Own Problems
Chris Hurst - Curtin University of Technology, WA
Workshop **Years 1 - 10**
This session looks at how children can be motivated towards learning mathematics through solving problems that they have posed in contrast to being asked to solve problems and complete 'artificial' or meaningless tasks in which they have no particular interest. This will be done through a brief presentation followed by a workshop session. The presentation section uses examples from two successful courses titled 'Connecting Maths' conducted with Year 1-10 teachers through which students and their teachers developed a problem based project based on the students' interests. Mathematical investigations were then conducted over a period of 10-12 weeks to solve the problems that the students had posed. The workshop part of the session is designed to help participants set up similar problem based projects with their own classes.
Repeated as C13

H12 Strategies to Promote Algebraic Thinking in the Primary Years
Calvin Irons - Queensland University of Technology
Lecture **Years 2 - 6**
This session will describe an overall teaching sequence, with sample activities, to establish a sound foundation for algebra that can be used as a 'launching pad' for the more formal study of the discipline in the secondary school. The sequence will include ideas for the development of equality, relationships and functions.
Repeated as A11

H13 Beating the Groan
Marcus Finlay - Westbreen Primary School
Lecture **Years 2 - 8**
How do we combat negative perceptions of maths in our classrooms? This is an old chestnut that has been beaten about for years. This session follows one teacher's journey to turn groans into grins and will provide some practical

examples of genuine and engaging real world tasks with links to other subject areas.
Repeated as G14

H14 Mathematical Misconceptions in Years 3 and 4
Catherine Pearn - University of Melbourne
Lecture **Years 3 - 4**
Recent research into the ways students learn mathematics has highlighted many misconceptions held by students in the middle years of primary schooling. This presentation will focus on the differences in the types of strategies used by students to solve mathematical tasks and teaching strategies that can be used by classroom teachers to assist all students from Years 3 and 4 to achieve in mathematics.
Repeated as F15

H15 Numbers Are Your Friends
Helen Chick - University of Melbourne
Workshop **Years 5 - 8**
Do your students know what's special about the number 27? What about the number 91? How good are they at finding factors? How much do they know about the effects of multiplying and dividing? In this workshop we will try a variety of activities that can be used in the classroom to help your students make numbers their friends.
Not Repeated

H16 'Higher, Faster, Stronger' Inquiry-based Cluster Maths Project Using the Olympics
Miranda Price - Chatham Primary School
Nancy Prince - Surrey Hills Primary School
Workshop **Years 5 - 8**
Cluster Maths Project designed and delivered by the Primary and Secondary Schools in the area. An inquiry-based project centered around the Olympics. It covers all aspects of VELS Maths for Level 4 and 5. We will share the project and our experiences with presenting to the students.
Repeated as C23

H17 Lesson Study: An Effective Teacher Professional Learning Model
Peter Sanders - La Trobe University
Lyn Forsyth - Brentwood Park Primary School
Lecture **Years 5 - 8**
The Berwick South Cluster Numeracy Team are developing exemplar tasks, initially in Fractions and now in Structure. To trial these lessons, a professional learning model Lesson Study was chosen. This presentation will explain how Lesson Study works in the Berwick South cluster of schools, and detail its effectiveness as a model for teacher professional learning.
Repeated as A24

H18 How Connected are Gears, Ratios and Fractions?
Debora Lipson - Victoria University
Workshop **Years 5 - 8**
The recent introduction of robotics in schools has allowed students and teachers access to a range of educational potential embedded in this medium. However, it has been observed that often there is not a considered inclusion of gears in most constructions. This appears to be attributed to either the lack of appreciation for the maths associated with gears, or the lack of understanding of fractions and ratios. This presentation will cover the results from a recent research project and allow an opportunity for experiential learning through some hands-on play, examining ratios and fractions while building a compound gear configuration.
Notes: Please bring your TI CAS calculator or one will be provided.
Repeated as G22

H19 Mathematical Problem Solving - A New Paradigm
Tin Lam Toh - National Institute of Education, Nanyang Technological University, Singapore
Lecture **Years 5 - 10**
This session features a new paradigm to mathematical problem solving. While the model underpinning this approach stems from Polya's well-known mathematical problem solving, suggestions are made on how the problem solving processes become the key focus in mathematical problem solving in itself. Samples of 'practical worksheets' used in the Singapore secondary school classrooms will be shown.
Repeated as C26

H20 Using Mathematica Demonstrations Project Resources in Middle School

Peter Hartley - Carey Baptist Grammar School

Computer Lab **Years 7 - 9**

The Demonstrations Project is providing a rich source of free interactive programs that can readily be used in the classroom. Mathematica Player is a free download from the Web and with it students can manipulate 2 and 3 Dimensional models, solve numeric problems and explore algebra. We will mostly look at the powerful 3D modelling features and how they can be integrated into Middle school lessons.

Repeated as A33

H21 Using TI-Nspire CAS Calculators in Years 7 to 9

Rodney Anderson - Moreton Bay College, QLD

Workshop **Years 7 - 9**

How can you use the TI-Nspire in the junior school? Why not use the TI-Nspire CAS calculator through all year levels of high school? In this session I will share some of the files I have developed and used with my Year 8 class this year. In addition we will develop files that can be used in your classroom. TI-Nspire calculators will be provided for you to use.

Notes: TI-Nspire calculators will be provided for you to use. Please bring your own TI-Nspire calculator (and USB) to collect files.

Not Repeated

H22 What's the Angle?

Denis Day - Glenvale School

Subra Muniandy - Glenvale School

Workshop **Years 7 - 10**

Tired of having students' measure angles in a text book? Then these activities are for you. Two hands-on practical and relevant activities are presented to teachers to conduct with their students. Participants will be involved in both tasks so that on their return to school they have two hands-on activities they can easily conduct with their classes.

Not Repeated

H23 Fostering a Culture of Problem-Solving in Mathematics

Ray Peck - Australian Council for Educational Research (ACER)

Workshop **Years 7 - 10**

What good is mathematics knowledge if it cannot be applied to solve problems? But just what is a good or real problem? How can ALL students become better at (and even enjoy) problem-solving? How can teachers improve and sustain their practice and how can schools foster a culture of problem-solving? It's easy to ask the questions but what are the answers? This session will discuss and model effective strategies and share exemplary resources and experiences. Participants should bring along their favourite problems and resources.

Repeated as E33

H24 Vodcasting Mathematics

David Phillips - Southwood Boys Grammar

Lynnette George - Southwood Boys Grammar

Workshop **Years 7 - 12**

The presenters demonstrate how to produce Vodcasts to enhance student learning either at school or home via the internet using YouTube. Participants will receive a CD with the necessary software and example Vodcasts including 'How to make a Vodcast'.

Notes: Please bring your laptop fully charged (and a microphone).

Repeated as B33

H25 Mathematics in Te Reo Māori - Who Needs English?

Brian Tweed - Massey University College of Education, New Zealand

Workshop **Years 8 - 10**

This option will explore the unique features of Te Reo Māori, the Māori language, that make it especially powerful for the learning of Mathematics. Problems involved in learning in English suggest the need to eliminate English as a 'support' language for learning mathematics in Māori. Examples of possible activities and teaching practice will be described along with possible future directions for Mathematics education in Māori medium settings. There will be 'hands-on' activities and there is no need to know anything about Te Reo Māori!

Notes: Please note that although the option is about the Māori language and the presenter is a fluent speaker, it will be delivered in English and everything will be accessible for the non speaker of Māori. (There will be some learning of Māori words and syntax by participants though).

Repeated as C38

H26 Integrating Computer Marked Assessment - The Daramalan Experiment

Tony Allan - Daramalan College, Canberra

Lecture **Years 8 - 12**

At Daramalan College in the ACT there are a number of courses across the age range that are using computers for teaching, learning and, significantly, assessment. For example, Year 8's with special needs are learning a topic one day then spending the next lesson taking tests with randomly generated questions as many times as they need to get a good mark. They find this a most rewarding experience. Other classes across the age range are doing assignments on the computers. The chief benefits for teachers are:

1. rewarding lessons, and
2. no marking!

Reference will be made to the Arithmetika Assessment Manager program but this is NOT a commercial presentation.

Not Repeated

H27 Learning How to Use a CAS Calculator

Hayden McQueenie - Victoria University

Chris Ly - Victoria University

Computer Lab **Years 9 - 10**

While on teaching rounds, we discovered that there were many Mathematics teachers in the lower secondary school who were still not familiar with the manipulation and integration of the CAS calculator. We were subsequently asked to run some professional development in our schools, and approached the task in the capacity as novice teachers. This unique perspective allowed us to investigate and deliver a non-threatening learning environment that covered various functions available in the CAS calculator and incorporated examples and application problems. We are DipEd students from Victoria University.

Repeated as F40

H28 A Beginners Look at the TI-Nspire Calculator

Jennifer Curtis - St Mark's Anglican Community School

Workshop **Years 9 - 10**

This session will be a practical, hands-on activity touring the key pad and introducing some ideas for use in the lower secondary classroom.

Notes: If you don't have a TI-Nspire calculator there will be some available to use in this session.

Repeated as E41

H29 Dynamic Geometry Enriching Curriculum Materials for Middle Secondary School Mathematics

Kaye Stacey - Melbourne Graduate School Of Education

Robyn Pierce - University Of Melbourne

Computer Lab **Years 9 - 10**

This hands-on session will show how Geogebra can be used to support the use of real world contexts for mathematics in the middle secondary years. Geogebra is a free and multi-platform dynamic geometry-algebra-calculus program. Dynamic geometry linked to real world images or used to create dynamic simulations enables students to collect data and to gain mathematical understanding through exploration using multiple representations. Adding colour, movement and interaction can impact on students' general attitude towards studying mathematics.

Notes: This session will be held in a computer lab with software provided. Alternatively, participants can use their laptops if they install in advance Geogebra from http://www.geogebra.org/cms/.

Repeated as G38

H30 Getting off First Base With The ClassPad

Anthony Harradine - Prince Alfred College, SA

Workshop **Years 9 - 12**

Come and learn the basics of how the ClassPad operates and a number of useful processes that will enable you to explore it further. Useful, free resources that will assist both you and your students in moving on will be available.

Notes: BYO ClassPad or use a loan machine.

Repeated as E44

H31 Maths and Technology for Techno-Novices

Geoff Campbell - The MacRobertson Girls' High School

Dean Lamson - Ballarat & Clarendon College

Computer Lab **Years 9 - 12**

Many maths teachers want to make better use of ICT in their classrooms and to collaborate with their colleagues, but are unsure of how to get started; what products to use and how to use them. This session is NOT aimed at confident users who want to refine their skills, rather at those who've never had the time and/or the resources at their disposal. We will cover use of free/shareware software, such as Graphmatica and GeoGebra, as well as some

of the commercial offerings, such MathType and the Efofex suite of maths software. We will also demonstrate use of interactive whiteboards, wireless keyboards and mice and datalogging equipment with Texas Instrument calculators. Examples of maths documents generated using maths software from within Word will be distributed and their construction explained. Practical suggestions for collaboration and digital organisation will be modelled and discussed. The presenters have no association with any manufacturers/distributors of the software or equipment used in the presentation but are simply demonstrating resources that they have found useful.
Notes: Please bring a USB stick so that sample resources can be distributed.
Repeated as F42

H32 A New Approach To The Conics
Hussein Tahir
Lecture **Years 9 - 12**
In this seminar I propose a new approach to the teaching of Conic Sections, one that will allow their introduction at a much earlier stage in secondary mathematics instruction. The driving force behind this approach is geometric constructions, leading to algebraic studies of the conics, where the important concepts of locus and limits grow simultaneously. This activity-based learning process is student and computer friendly which brings with it a large number of investigative projects and problem solving tasks.
Repeated as F43

H33 The Limitless Performance Program
Jack Delosa - Limitless - Break Free
Workshop **Years 9 - 12**
The Limitless Performance Program gives teachers and academics insight into how they can heighten student engagement. Using world-class performance strategies, Jack Delosa gives teachers the skills and strategies needed in order to ensure their students are not just enrolled, but emotionally engaged and excited. This gives teachers the edge through ensuring the active involvement of their students.
Repeated as G44

H34 TI-Nspire CAS Calculators for Beginners
Shirly Griffith - Jacaranda (John Wiley & Sons)
Pauline Holland - Korowa Anglican Girls' School
Workshop **Years 9 - 12**
This workshop will provide novice users of the TI-Nspire CAS calculator with a step-by-step guide to using it effectively in the classroom. (Commercial Presentation).
Notes: If you have a TI-Nspire CAS calculator, then bring it along. Please ensure that Operating System 1.4 is loaded. Otherwise, a calculator will be provided to each participant.
Repeated as G45

H35 Fathom, Autograph and Tablet PCs in Teaching Maths
Elizabeth Bailey - La Trobe International College
Lecture **Years 10 - 12**
After last year's MAV conference I was inspired (by Frank Moya's recommendation) to attend the six day technology conference at Phillips Exeter Academy in New Hampshire in June this year. I was impressed by the use of technology that I hadn't come across before, or at least not in such depth. Since my return I have purchased a Tablet PC to use in my teaching and am now incorporating software such as Fathom and Autograph to help clarify concepts for my students. This is particularly important for our students who have limited language skills so a visual medium is very powerful in aiding their understanding. As the year progresses I would also like to include podcasts and wikis if possible. This session will give participants a taste of these technologies and how I have used them in a classroom setting, as well as sharing resources I obtained in the US.
Repeated as G46

H36 Using Resources to Assist Teachers in Effective Teaching of General and General Advanced Mathematics
Paul Negri - Highvale Secondary College
Alan Brookes - Highvale Secondary College
Computer Lab **Years 11 - 11**
Mathstrack is an integrated resource that provides teachers with the necessary tools to enhance the process of teaching and learning. If used to its full potential it will reduce teacher workload and at the same time provide students with a large variety of interactive consolidation, with emphasis on General and General Advanced Mathematics Units 1 and 2. (Commercial Presentation)
Repeated as D48

H37 Maths Methods (CAS) - Additional Content in the CAS Course

Frank Moya - Frankston High School

Workshop **Years 11 - 12**

This hands-on workshop is aimed at teachers who are new to the teaching of Maths Methods (CAS) Units 1 and 2 or 3 and 4. Participants will be introduced to the use of the CAS device to assist with the teaching and learning of the content that is prescribed for the CAS course only. This will include the use of transition matrices in Markov chains, the use of matrices in transformations and in systems of equations, average value of a function, functional equations and the general solution of trigonometric equations. The TI-Nspire CAS handheld will be used. However, the content of the workshop is suitable for teachers who use other CAS platforms in their schools.

Repeated as B47

H38 Maths Why Not

Tom Delahunty - Trinity Grammar School

Lecture **Years 11 - 12**

"Maths Why Not" is a National Working Paper investigating the decline in numbers in Higher Mathematics (Specialist Mathematics) across Australia. The final report has been released and recommendations made. There are things mathematics teachers and careers advisors can do to improve the students awareness of the importance of Specialist Maths.

Not Repeated

H39 How Much Further?

Andrew Stewart - Presbyterian Ladies' College

Lecture **Years 12 - 12**

The involvement of technology in Further Mathematics has changed not only what we teach, but how we teach and assess. An experienced Further Mathematics teacher will review the technologies that have helped (or hindered) this subject and speculate on future developments.

Repeated as B50

H40 VCE Mathematical Methods, Examination 2

Bruce Henry - Australian Maths Trust

Mary Papp - University High School

Lecture **Years 12 - 12**

Examination 2 for Mathematical Methods 3/4 will be discussed. Discussion will include common student errors, commonly lost marks and student misconceptions.

Repeated as B51

H41 Shape Up!

Ruth Goddard - CAE, Glenroy Neighbourhood Learning Centre

Workshop **Years VCAL - Adult**

A collection of geometry activities which are hands-on and engaging for a range of abilities.

Repeated as G50

Presenter Listing

Fiona Affleck - A21, B21, C4, D4, E13, F16, G6, H4
Tony Allan - A41, B38, F39, H26
Linda Anania - F25, G26
Judy Anderson - HK1
Rodney Anderson - B35, H21
Leonie Anstey - B22, C22, E20, G23
Stephen Arnold - A39, C37, D35, G34
Peggy Ashton - A12, B16
Elizabeth Bailey - G46, H35
Lauren Baird - G39
Helen Baldock - D6, F5
Daniela Baric - F33, G33
Linda Baron - C14, D14
Greg Barras - B41, C44, G43
Ros Bartosh - B15, D13
Rosetta Batsakis - A51, C35
Pat Beeson - B20, E17
Kim Beswick - GK3
George Booker - C21, E19
Jennifer Bowden - C9, D8
Nikki Boyce - A31, B27
Jo Bradley - B32
Phil Broadbridge - E47
Alan Brookes - C19, D48, G20, H36
Paul Brown - A40, E11
Russell Brown - B48, C50, D49, E50, F49
Jill Brown - BK2
Helen Burns - B30, E32
Mary Burns - C14, D14
Elizabeth Burns - EK2
Sherilyn Butler - D10, H7
Greg Butler - C5, D5
Tim Byrne - A25
Geoff Campbell - F42, H31
Trevor Carter - C49
Jan Cavanagh - G18, H3
Fiona Cavigan - C8, F7
Helen Chick - H15
Anita Chin - B14, E10
Trish Christies - A25
Alper Ciftci - B43, D42
Rebecca Clark - C8, F7
Michael Cody - E48, F47
Brendan Colley - A8, C11
Peter Collins - E28, F27
Shirley Collins - E16, F17
David Collins - G39
Tony Collison - B10, G11
Lisa Conibeer - D6, F5
Nick Connolly - A17, B18
Amanda Cousins - B17, C16
Robyn Crockett - C10
Jennifer Curtis - E41, H28
John Davidson - A32, E30
Lloyd Dawe - A44, B40
Denis Day - A37, B29, C33, D31, F32, G32, H22
Rachel Dean - A32, E30
Tom Delahunty - H38
Jack Delosa - G44, H33
Cathy Devlyn - B44
Ann Downton - FK3
Rosemary Dusting - D28
Elaine Dyason - B15, D13
Hagir Eltayeb - E27, G28
Michael Evans - E47
Alison Fagan - A27, E22
Wendy Falconer - E16, F17
Tim Falkiner - DK3
Judith Falle - A7, B12
Sue Ferguson - CK2, EK1
Sue Fine - B6, E6
Marcus Finlay - G14, H13
Diane Foley - C15, D15
Lyn Forsyth - A24, H17
Peter Fox - C34, F48, G49
Joanne Ganis - A31, B27
Sue Garner - G47
Lynnette George - B33, H24
Glenda Gerrard - C42, D39
Deborah Gibbs - C31, D26
Helen Gist - A28, E8, G25
Ruth Goddard - G50, H41
Fotini Godeassi - C8, F7
John Gough - A6
Bozenna Graham - B42, F45
David Greenwood - D40, G42
Shirly Griffith - C44, G45, H34
Sue Gunningham - A4, B8, E5, F4, G4
Katelyn Haites - E7, F8
Cameron Hallowell - B36, G35
Carolyn Hamilton - F31, G30
Pamela Hammond - F9, G10
Len Hannah - B44
Anthony Harradine - B39, D27, E44, H30
Hanan Harrison - BK1
Peter Hartley - A33, E31, H20
Penny Hedin - F11, G12
Mark Hennessy - DK1
Bruce Henry - B51, H40
Pamela Hilditch - F11, G12
Jim Hogan - C40, F37
Pauline Holland - G45, H34
Marj Horne - F22, G24
John Howes - C25, D21
Damian Howison - A34, G29
Emily Hui - E38, F36
Tania Hunt - D6, F5
Chris Hurst - C13, H11
Sue Inness - B24, C24
Rosemary Irons - D11, F12
Calvin Irons - A11, H12
Diane Itter - D32
Lauren James - D29, G31
Suzanne Janssen - A49, B46
Peter Jones - A50, E49
Clyde Juriansz - A28, G25
Penelope Kalogeropoulos - B23
John Kermond - A53, F50
Kim Kirkpatrick - D10, H7
Angela Kotsiras - B28, F30
Konrad Krainer - GK1
Donna Krenn - A22, D17
Jean-Marie Laborde - GK2

Dean Lamson - F42, H31
Brian Lannen - G8
Anne Lawrence - AK2, E36
David Leigh-Lancaster - D43, F44
Jennifer Leishman - B30, E32
Debra Leong - A47
Steve Lewis - A18, E21
Debora Lipson - G22, H18
Sharyn Livy - F6, H5
Sharon London - E29, F29
Ian Lowe - A16, B34, C27, D23, E15, F35
Donna Ludvigsen - A3, B5
Chris Ly - F40, H27
Rhonda Lyons - C20, E18
Chris MacDonald - A34, G29
Peter Maher - B7, D9
Mohammed Mall - B52, D50
Eric Marcos - A30, F26
Ted Marks - E21
Ian McArthur - F31, G30
Natasha McCormick - F25, G26
Casey McGarigle - C25, D21
Lyn McGoldrick - D37, G40
Janine McIntosh - E7, F8
Roderick McLean - C47
Gael McLeod - C48, F46
Kevin McMenamin - A45, B37
Allason McNamara - A52, B49
Hayden McQueenie - F40, H27
Sylvia Michaels - D40, G42
Miranda Milaszewicz - A21, B21, C4, D4, E13, F16, G6, H4
Chris Millard - A32, E30
Anna Miller - F19, G19
Monique Miotto - A44, B40
John Mitsinikos - A42, E42
Hatice Mohamed - G48
Robert Money - C29, D38, E43
Frank Moya - B47, H37
Subra Muniandy - A37, B29, C33, D31, F32, G32, H22
Bill Murray - D29, G31
Jeyaletcumi Muthiah - G37
Paul Negri - C19, D48, G20, H36
Mark Nesbitt - B41, G43
Karim Noura - A38, E37
Paul Nugent - B32
Mark O'Brien - B31, D34, E35
Shane O'Connor - F33, G33
Claire O'Connor - A8, C11
Lauren O'Grady - A26, B25, D20, F23
Brendan Owen - A46, E45
Theresa Pagon - A36, B36, E34, G35
Mary Papp - B51, H40
Naomi Pask - A7, B12
Stuart Payne - A49, B46
Catherine Pearn - A23, B4, C3, D19, E8, F15, G16, H14
Ray Peck - E33, G16, H23
Aaron Peeters - G9, H8
Irit Peled - FK1
June Penney - C10, E4, G7
David Perry - C32, D30
Thelma Perso - FK2
Jon Phegan - F20, G21
David Phillips - B33, H24
Geoff Phillips - C46, D44
Robyn Pierce - G38, H29
Burkard Polster - HK2
Anne Prescott - F20, G21
Miranda Price - C23, H16
Nancy Prince - C23, H16
Adria Quinn - C6, D7
Michael Quinn - C12, D12
Lyndon Regan - C18
Paul Rehill - D33, F34
Tony Richards - A30, C17, D16, F26
Michael Richards - D24
Leanne Robertson - CK2, EK1
Tom Robinson - A32, E30
Pauline Rogers - A15, E14
Marty Ross - EK2, HK2
Joanne Roughan - D37, G40
Kerry Rowett - H6
Peter Sanders - A24, H17
Kerryn Sandford - A31, B27
Mary Sanghvi - A9, B13
Anna Satherley - C30, D25
Trevor Saunders - C30, D25
Christine Scafidi - A18
Maria Schaffner - D45
Rebecca Seah - E23, F24
Alicia Sibly - G9, H8
Dianne Siemon - AK1
Lisa Sinibaldi - A43
Matt Skoss - C17, D16
Donald Smith - C39, G36
Tracey Snape - A19
Warren Snow - C41, D36
Social Education Victoria - E9, F10
Jamos Somerville-McAlester - DK2
Naomi Sordello - A3, B5
Len Sparrow - D18, F21
Kaye Stacey - G38, H29
Max Stephens - A23, B26, D19, E24
Brett Stephenson - F41, G41
Andrew Stewart - B50, H39
Gloria Stillman - BK3, E47
Peter Sullivan - EK2, F31, G30
Roger Suter - E4, G7
Peter Swain - E38, F36
Paul Swan - D18, F21
Philip Swedosh - A52
Hussein Tahir - F43, H32
Judy Taylor - C42, D39
Julie Thompson - A8, C11
Ian Thomson - F28
Alan Thwaites - A20, B19
Phil Todd - D47, E46
Tin Lam Toh - C26, H19
Helen Toon - B17, C16
Dave Tout - A10, E26, G27
Jeff Trevaskis - C41, D36
Gerard Tuffield - B9
Allan Turton - A5, B9, G15
Brian Tweed - C38, F37, H25
Colleen Vale - EK3
Fiona Van Heuman - C5, D5
Marcel Van Otterdyk - A35

Rob Vermay - D51, E25
Jenny Vincent - A12, B16
Jessica Wagner - E27, G28
Ken Walker - C25, D21
Roger Wander - A48, C45
June Warren - D45
Jennifer Way - CK1
Gabrielle West - F13, H10
Charlotte Wilkinson - F18, G17
Douglas Williams - A13, B11, C7, D22, E12, F14, G5
Ray Williams - E40, F38
Neville Windsor - C43, D41
Will Windsor - G13, H9
Ian Wong - A29, C28
Neale Woods - B45, C36, D46
Alexander Young - A14, E39
Sue Young - E8