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Session Details:
Thursday 3rd December 2009
Session A - 10:45am - 11:45am Standard session 20
Session A-B - 10:45am - 1:00pm Extended session 28
Session B - 12:00pm - 1:00pm Standard session 30
Session C - 2:00pm - 3:00pm Standard session 38
Session C-D - 2:00pm - 4:15pm Extended session 45
Session D - 3:15pm - 4:15pm Standard session 47

Friday 4th December 2009
Session E - 9:00am - 10:00am Standard session 54
Session F - 10:45am - 11:45am Standard session 62
Session F-G - 10:45am - 1:00pm Extended session 70
Session G - 12:00pm - 1:00pm Standard session 72
Session H - 2:00pm - 3:00pm Standard session 80

Presenter Listing 89

Special Note:
This year we have included three “Extended Sessions”. These sessions run over two sessions (length may vary). If you are attending an extended session, for example Session A-B this will replace your choices for both Session A & Session B.
“Mathematics: Of Prime Importance”

Mathematics has been an important part of human activity since prehistoric times. Every culture has developed some mathematics. The earliest instances of mathematics were of counting, calculating, measuring and the geometry of the paintings and drawings left behind by early man. Abstraction and logical reasoning grew from these early beginnings. By the time of the Babylonians around 3000 BC arithmetic, algebra and geometry were being used in financial calculations, building and in the study of astronomy. Around this time, the Indus civilisation was using a decimal system of weights and measures and some time later the Chinese developed sophisticated mathematical systems. In antiquity the Greeks (600-300BC) documented the systematic study of Mathematics and examined its place across a wide area of human interest including music and astronomy.

Today mathematics is an essential aspect of modern life and is integral to many fields of endeavour. These are as diverse as art, architecture, science, engineering, accounting, medicine and predictions of global warming, and as simple as catching a bus or balancing a budget. The conference committee has chosen the theme “Mathematics: Of Prime Importance” to highlight the fact that Mathematics is an integral part of life in the 21st Century. Our task as teachers of Mathematics, is to communicate to our students an appreciation of the beauty and elegance of mathematics as well as its utility. The theme provides wide-ranging scope for the presentation and discussion of mathematical ideas across all of these areas and more.

As you can see from this synopsis booklet the conference once again has a huge range of offerings. I would like to thank our presenters for making themselves and their expertise available. Our anniversary lecture will be presented by Jean-Marie Laborde from Cabrilog, France.

This year we have changed the format for the conference dinner. The conference committee felt that the dinner needed a little livening up and would love to see you there if you can make it. We’ll be moving the dinner offsite to Rumeli’s in Brunswick and you can look forward to traditional Turkish food and entertainment. A bus will be available to take those delegates who are staying at La Trobe University or Rydges Hotel to the dinner and back. We are hoping that a more convenient location closer to town will encourage more of our Melbourne delegates to attend as well. The details are enclosed here in the conference synopsis book and we would love you to come and socialise.

Planning for the MAV Annual Conference begins just as soon as the previous conference concludes. The conference is the result of the work and support of many people and organisations. We are very lucky to have the generous support of our valued sponsors.

I would like to thank Texas Instruments and Casio whose generous support is a major contributing factor to the success of the conference. Without the tireless work of the conference committee, Julie Allen and her team at The Full Pretzel and the staff of the MAV the conference could not be staged. My thanks go to them for an amazing effort in staging the conference.

Please enjoy reading through the synopsis book and selecting your sessions and I look forward to seeing you at the conference in December.

Jeanne Carroll
Conference Convenor
GENERAL INFORMATION

DATES
Wednesday 2nd - Friday 4th December, 2009

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 2nd December
6:00pm - 10:00pm
Location: The Eagle Cafe, Union Building

OPENING CEREMONY & ANNIVERSARY LECTURE
Date: Thursday 3rd December
9:00am - 10:00am
Presenter: Jean-Marie Laborde
- Cabrilog, France
Location: Agora Theatre, Agora

CLOSING CEREMONY
Date: Friday 4th December
3:15pm - 4:15pm
Presenters: Sue Ferguson
- ACARA
Location: Agora Theatre, Agora

EXHIBITION
Date: Thursday 3rd December
8:00am - 5:30pm
Date: Friday 4th December
8:00am - 2:00pm
Location: Main Hall, Union Building

HAPPY HOUR
Date: Thursday 3rd December
4:30pm - 5:30pm
Location: Main Hall, Union Building

CONFERENCE DINNER
Date: Thursday 3rd December
7:00pm - 11:00pm
Location: Rumeli’s, Brunswick

KEYNOTE SPEAKERS:
◊ George Booker
◊ Russell Brown
◊ Jill Cheeseman
◊ Anita Chin
◊ David Clarke
◊ Sue Ferguson
◊ Peter Fox
◊ Anthony Harradine
◊ Calvin Irons
◊ Anne Lawrence
◊ István Lénárt
◊ Andrea McDonough
◊ Kevin McMenamin
◊ Allason McNamara
◊ Roslyn Mullins
◊ Shane O’Connor
◊ Burkard Polster
◊ Marty Ross
◊ Dianne Siemon
◊ Paul Swan
◊ Brian Tweed
◊ Ian Wanless
◊ Douglas Williams

CONFERENCE OFFICE CONTACTS:
Julie Allen - Event Manager
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DDI: 61 (0) 3 9389 0310
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The Mathematical Association of Victoria
61 Blyth Street
BRUNSWICK VIC 3056
AUSTRALIA
PH: 61 (0) 3 9380 2399
FX: 61 (0) 3 9389 0399
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.

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For more information go to http://www.aamt.edu.au/standards/
AGENDA

Wednesday 2nd December
6:00pm - 10:00pm Welcome Dinner The Eagle Cafe

Thursday 3rd 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
10:45am - 1:00pm Session A-B
12:00pm - 1:00pm Session B
1:00pm - 2:00pm Lunch
2:00pm - 3:00pm Session C
2:00pm - 4:15pm Session C-D
3:15pm - 4:15pm Session D
4:30pm - 5:30pm Happy Hour Union Hall
5:30pm Registration & Exhibition Closes
7:00pm - 11:00pm Conference Dinner Restaurant

Friday 4th 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
10:45am - 1:00pm Session F-G
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

Extended Sessions:
This year we have included three “Extended Sessions”. These sessions run over two sessions (length may vary). If you are attending an extended session, for example Session A-B this will replace your choices for both Session A & Session B.

cancellation Policy:
Participants who cancel their booking on or prior to Monday 9th November 2009 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 9th November 2009. Registration may be transferred to another person.
REGISTRATION INFORMATION

Registration Fees:

1. Session Registration
   - Member Metro: $168/day, $315/2 days
   - Member Non-Metro: $163/day, $305/2 days
   - Non-Member: $220/day, $420*/2 days
   - Student: $118/day, $176*

2. Welcome Dinner (Wednesday 2nd December) $47.00
3. Conference Dinner (Thursday 3rd December) $60.00
4. Breakfast (per person, per day) $15.00
5. Happy Hour (Thursday 3rd December) FOC
6. Lunch (1 per person, per day registered) FOC

All prices are inclusive of 10% GST.

** SPECIAL CONFERENCE OFFER!!
Select to attend 2 days of the conference for $420 at the non-member rate and we will include an individual membership for 2010 (valued at $120).

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.
4. If you attended the conference last year or you have attended a MAV Professional Learning program this year please make sure you login using the email address that you used then.
5. a) Follow the instructions to update your profile. Make sure that you check and update all details, especially your dietary requirements.
   b) If registering on the MAV site for the first time please use the email address that you use most often, eg. surname.first.initial@edumail.vic.gov.au. Then follow the instructions to create your profile.
6. Follow the instructions to choose your sessions, social program, food, accommodation, etc.
7. When you have completed your registration please print a copy of the confirmation for your records. (If you think you are a member but have been charged as a non-member check with our office by calling 03 9380 2399)
8. Press submit to complete your registration.
9. Print out a copy of your confirmation for your records.

Note: After you have registered you may login at any time using your login details to change your sessions or to 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.
- The MAV reserves the right to cancel presentations if minimum numbers are not reached.

APPLICATIONS CLOSE MONDAY 9TH NOVEMBER 2009 AT 5:00PM
FOOD & BEVERAGES

Welcome Dinner - Wednesday 2nd 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 3rd & Friday 4th 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 3rd and Friday 4th 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 3rd & Friday 4th December
Morning tea is included in the registration fee and will be provided to all delegates at in the main Exhibition Hall on both days.

Lunch - Thursday 3rd & Friday 4th 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:

◊ Eagle Café
◊ Ping’s Café Moat
◊ Café Spice
◊ Café Veloci
◊ Caffeine Café
◊ Campus Café
◊ Charlie’s Kebab House
◊ Life Skills Café

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

Eagle Café
Spinach/Ricotta Pie with Salad and Roast Potatoes OR
Lasagne with Salad and Roast Potatoes OR
Chicken or Beef Casserole with Rice

Ping’s Café Moat
Thursday
Hot Lunch Box
Lemon Chicken OR
Mixed Stir Fry Vegetables with Tofu
(both with steamed rice and bottle of drink)
Cold Lunch Box
Roast Chicken and Salad Roll with Vegetarian Sushi
(with bottle of drink)

Friday
Hot Lunch Box
Rainbow Steak OR
Mixed Stir Fry Vegetables with Tofu
(both with Steamed Rice and bottle of drink)
Cold Lunch Box
Teriyaki Chicken OR
Salad Roll (with Vegetarian Sushi and bottle of drink)
Agora Square

Café Spice
1 Large Rice and any 2 Curries
with a can of soft drink

Café Veloci
Chicken Fillet Focaccia OR
Vegetarian Wrap OR
2 Pizza Slices OR Large Pasta
(all with piece of fresh fruit, cold drink and Pink Ribbon chocolate)

Caffeine Café
1 x Fresh Roll OR
3 x Sushi
(both with regular coffee or regular water or soft drink)

Campus Café
3 x Sushi Rolls OR
Original Hot Dog and Chips OR
Chicken Salad Sandwich and Cake
(all with drink)

Charlie’s Coffee & Kebabs
Thai Grilled Chicken and Salad Wrap OR
Chicken Schnitzel Lettuce, Cheese and Mayo Roll OR
BBQ Chicken and Salad Turkish Roll OR
Falafel Tabouli and Hummus Turkish Roll
(all with a piece of fruit and a Classic juice or 600ml water)

Life Skills Café
Variety of Wraps (1) OR
Vegetarian Quiche
(both with a drink)

Happy Hour - Thursday 3rd December 4:30pm - 5:30pm
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 3rd December 7:00pm - 11:00pm
This year the dinner will be going “Off Campus”. Come and join us to get a flavour of the multi-culturalism of Melbourne as we venture out to a Turkish restaurant in the heart of the home of the MAV - Brunswick. Relax, network, enjoy good food, good wine and some traditional entertainment. A bus will pick up dinner attendees from La Trobe University at 6:00pm and then pick up at Rydges Hotel. At the end of the evening the bus will then drop off those staying at Rydges and Glen College.
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. 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 $ 109.00 Per Room/Per Night

B. Sleep & Go Queen (21 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 $ 109.00 Per Room/Per Night

C. 1 Bed Manhattan Room (6 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 $ 175.00 Per Room/Per Night

D. 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 $235.00 Per Room/Per Night

Other accommodation options are available and can be quoted on request.
ANNIVERSARY LECTURE
Thursday 3rd December - 9:00am - 10:00am, Agora Theatre

Jean-Marie Laborde - Cabrilog, France
Technology for Math Education: One Element of Prime Importance!
What has changed here and how, since recent and unprecedented moves in Informatics? Examples to be taken from Cabri and other SW.
During the decades of the previous century, Computer Science underwent two major revolutions. One matches the way computers have changed in size, from room size to palm size, keeping the same, if not augmenting, their computing power. The other is Direct Manipulation – the age of interactivity. Now, rather than using commands, you are able to manipulate objects directly on the screen, allowing for deeper comprehension and understanding. I will illustrate my presentation using (the good, the bad and the ugly) examples from Cabri, including the new Cabri LM mixing in one unique environment 2D and 3D, numeracy, algebra and geometry, as well from many other math computer environments.

Jean-Marie Laborde - Jean-Marie 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. 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 awarded nominated as the Educational Software of the year by Apple. Jean Marie Laborde 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 (Université Joseph Fourier). In the meantime he devotes his efforts to the spread of the SW Cabri-géomètre, nowadays sold worldwide to more than 50 millions 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 Laborde 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 his full activity devoted 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 Sao Paulo (Brazil), Montreal (Canada), Santiago de Chile, Saltillo (Mexico), Roma (Italy), Bogota (Colombia)). Jean-Marie is a member of numerous scientific committees, he 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 international level.

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

Sue Ferguson - ACARA
The Australian Mathematics Curriculum
The Australian Mathematics Curriculum will be implemented in schools from 2011. This address will outline the timeline and process for developing the curriculum and identify key features of the P-10 curriculum and the Year 11 and 12 courses. The address will also highlight issues for schools and mathematics educators in preparing for the implementation of the curriculum.

Sue Ferguson - Sue is Senior Project Officer, Curriculum with the Australian Curriculum, Assessment and Reporting Authority with responsibility for managing the development of the Australian National Curriculum. Previously she was Manager Strategic Communication, The Le@ring Federation for Curriculum Corporation. Sue has been a secondary school teacher and a sessional lecturer at Victoria University working with pre-service teachers in mathematics education. Sue’s major interests in education include curriculum development and the potential of digital content to enhance learning.
SESSION SUMMARY

SESSION A: 10:45am - 11:45am Thursday 3rd December

AK1 Prep - 10 Mathematics - Of Prime Importance. Is it? - Douglas Williams
AK2 Prep - Adult Wonderment: Stimulating Children’s Thinking in Mathematics - Paul Swan
AK3 7 - 12 Thinking about Mathematics - Peter Fox
A4 Prep - 1 Learning About Number- Natural and Complex for Children - Rosemary Irons
A5 Prep - 2 Stepping Stones: The Next-Generation Mathematics Program! - Gerard Tuffield
A6 Prep - 6 Getting the Most Out of Professional Development: Teachers Taking Control - Anne Scott, Philip Clarkson, Andrea McDonough

A7 Prep - Adult Ensuring Teacher Aides are Equipped to Competently Assist Both the Classroom Teacher and Students - Tracey Snape

A8 1 - 2 Mathematics Intervention in the Early Years - Catherine Pearn
A9 1 - 4 Place Value Activities and Making Links to Problem Solving - Greg Butler, Fiona Lindsay, Lara Manning

A10 1 - 6 Who Benefits in Peer Tutoring - The Tutor, The Tutee or the Teacher? - Carol Butel
A11 1 - 6 Problem Solving and Algebraic Thinking - Will Windsor
A12 1 - 7 Linking Number with Measurement and Geometry - Linda Cheeseman, Anuja Singh
A13 3 - 5 Place Value. Why Do Some Students Struggle with Place Value? - Deborah Gibbs
A14 3 - 10 Unreal Footy = Real Learning + Unreal Fun - Phill Cristofaro
A15 4 - 6 Reducing Teacher Workload Through the Use of Digital Rubrics - Alexander Young
A16 5 - 6 Using Maths to Test Our Ideas - Daniel Avano, Bronwyn Quint
A17 5 - 8 Engagement and Disengagement in Mathematics Learning - Penelope Kalogeropoulos
A18 5-10 Working Mathematically with HOTmaths - Sharon London
A19 5 - 12 The Classroom Organiser: A Planning, Organising and Tracking System - Bill Murray
A20 6 - 10 Versatile Uses of Technology - Janine Angove
A21 7 - 9 Probability that Engages Students - Peter Hartley, Debra Brooks
A22 7 - 10 Mathematics - The Ugandan Way - Sue Neale
A23 7 - 10 “5-4-3-2-1 Boards Up!” - Increasing Classroom Engagement Using Mini-Whiteboards - Vebica Evans

A24 7 - 10 Hands-on Algebra Equations and Identities - Ian Lowe
A25 7 - 10 Air Rockets - Denis Day, Subra Muniandy
A26 7 - 10 Whole Class Activities for Year 7 to 10 - Theresa Pagon, Lyn Elms
A27 7 - 10 Macmillan Active: A New Concept in Homework Programs for 7-10 - Monique Miotto, Ingrid Kemp

A28 7 - 10 The Daramalan Experience: Electronic Assessment Success! - Tony Allan
A29 7 - 11 Moulding an Apprehensive CAS User Into a Confident CAS Practitioner - Kevin McMenamin

A30 7 - 12 Virtual Learning Communities - Adrian Camm
A31 7 - 12 Practical Reflections on Teaching Senior Secondary Mathematics in Victoria and the People’s Republic of China - HONGCHUN (HOLDEN) LU, JESSICA WU, DAVID LEIGH-LANCASTER
A32 7 - 12 Smarter Statistics - Don’t Go Down With The Titanic - Andrew Stewart
A33 7 - 12 Building Mathematics Courses in Moodle (Learning Management System) - Vanessa Rule, Chris Dunn

A34 8 - 11 Non-Routine Problem Solving Using ‘Geometer’s Sketch Pad’ - Karim Noura
A35 9 - 12 Univariate Data Analysis on the TI-Nspire CAS - Russell Brown, Maree Timms
A36 10 - 12 Towards a 1-to-4 Approach to Mentoring Mathematics Learners in South African Schools - Willy Mwakapenda, Joseph Dhlamini

A37 11 - 11 TI-Nspire with General Mathematics - John Llewelyn, Stuart Payne
A38 11 - 11 An Overview of Year 11 Mathematical Methods Course for the Teachers Who Are New to Teaching this Subject - Nalinik Ekanayake

A39 11 - 12 Statistics and TI-Nspire: An Overview - Peter Jones

A40 11 - 12 Introduction to Further Maths and the Casio ClassPad - June Warren, Maria Schaffner
A41 11 - 12 Mathematical Methods CAS Examination 2 - Allison McNamara
A42 11 - 12 Calculus on the ClassPad - Craig Tellefson, Jamal Gorgees
A43 11 - 12 Maths Methods (CAS) - Additional Content in the CAS Course - Frank Moya

SESSION A-B: 10:45am - 1:00pm Thursday 3rd December

A-B1 Prep - 4 Do It Right the First Time - Jan Cavanagh
A-B2 Prep - 6 Improving Student Learning in Mathematics Through the Explicit Teaching of Language - Joanne Riddell, Jackie Vella, Michelle Coupland
A-B3 3 - 12 Kids Teaching Kids via Tablet PC, Moodle and Student-Created Screencasts - Eric Marcos, Tony Richards
A-B4 5 - 8 ‘Putting a Spotlight on Division’ - Erin Hooper, Rose Golds, Heather Lewis
A-B5 5 - 11 Having Some Fun With Numeracy and Maths - Dave Tout
A-B6 7 - 10 Online Resources For Maths - Hang Nguyen
A-B7 7 - 12 Creating Interactive Documents with TI-Nspire - Stephen Arnold
A-B8 9 - 10 CAS-Active Approaches to Years 9-10 Mathematics - David Tynan, Peter Flynn
A-B9 9 - 12 Maths and Technology for Techno-Novices - Geoff Campbell, Dean Lamson
A-B10 9 - Adult I Have Never Used a Casio ClassPad - Anthony Harradine
A-B11 10 - 12 Intermediate TI-Nspire CAS Calculator Workshop - Neale Woods

SESSION B: 12:00pm - 1:00pm Thursday 3rd December

BK1 Prep - 8 Counting - Of Prime Importance or Too Much of a Good Thing? - Dianne Siemon
BK2 5 - 10 Paper Geometry Vs Orange Geometry (Comparative Geometry on Plane and Sphere) - István Lénárt
BK3 7 - 12 Beliefs, Understandings and Practice - An Impetus for Teacher Change - Anne Lawrence
B4 Prep - 4 Developing Early Place Value Understanding - Charlotte Rawcliffe, Alison Howard
B5 Prep - 6 Exploring Coaching for Effective Mathematics Instruction Using the e5 - Naomi Sordello, Paula Shaw
B6 Prep - 8 Teaching Mathematics at Stage Not Age - Alan McSevery
B7 Prep - 12 Moving to Mastery with Mathletics - Kate Williamson
B8 Prep - Adult Ensuring Teacher Aides are Equipped to Confidently and Competently Assist both the Classroom Teacher and Students - Tracey Snape
B9 1 - 2 Mathematics Intervention in the Early Years - Catherine Pearn
B10 1 - 4 Place Value Activities and Making Links to Problem Solving - Greg Butler, Fiona Lindsay, Lara Manning
B11 1 - 6 Problem Solving and Algebraic Thinking - Will Windsor
B12 1 - 7 Making Maths Marvellous with Manchester, Movement and Manipulatives - Gabrielle West
B13 1 - 12 An Interactive Whiteboard for Under $200 - David Phillips, Lynette George
B14 4 - 10 D.I.Y. e Resources on Excel - Peter Clerks
B15 5 - 8 Using Maths Extension Materials in the Upper Primary/Junior Secondary School - Ian Bull
B16 5 - 8 Datalogging Basics - Sue Inness
B17 5 - 9 Engaging Middle Years Students in Mathematics Using the MATHOMAT - Ted Marks, Steve Lewis
B18 5 - 10 Hands-on Algebra Functions - Ian Lowe
B19 5 - 10 Using Technology in the Mathematics Classroom - Sharon London
B20 6 - 10 School of Trivia: A Jammed Packed Frenzy of Maths, Pop Culture, Music, Film and Yes Maths!!! - Peter Curry
B21 7 - 9 Exploration of Rich Concrete Task to Consolidate Mathematical Understanding - Michelle Moses
B22 7 - 9 Teaching and Learning Mathematics in a Paperless World! - Kylie Taig
B23 7 - 10 Air Rockets - Denis Day, Subra Muniandy
B24 7 - 10 Mathematics - The Ugandan Way - Sue Neale
B25 7 - 10 Row and Run Using the TI-Nspire Software - Pauline Rocks
B26 7 - 10 Hunted, Sourced & Quartered - Finding Quality IWB Maths Activities Without the Hassle - Vebica Evans
B27 7 - 11 Using an E-activity Created by the Casio ClassPad - Kevin McMenamin
B28 7 - 12 Real Numbers - David Leigh-Lancaster
B29 7 - 12 Building Mathematics Courses in Moodle (Learning Management System) - Vanessa Rule, Chris Dunn
B30 8 - 10 Using a Motion Sensor to Create Real Time Distance-Time Graphs - Peter Mein
B31 9 - 10 Digital Interactive Maths Database (DIM) - Dubravka Maksimovic, Sandra Maksimovic
B32 9 - 10 New Interactive Resources for Years 9 and 10 - Paul Negri, Alan Brookes
B33 9 - 12 Marty’s Mathematical Horror Show - Marty Ross
B34 9 - 12 Univariate Data Analysis on the TI-Nspire CAS - Russell Brown, Maree Timms
B35 9 - 12 Webcasting and Virtual Classrooms - Adrian Camm
B36 9 - 12 Increasing Student Engagement in the Senior Years - Karen Crothers, Leah Whiffin
B37 10 - 12 Towards a 1-to-4 Approach to Mentoring Mathematics Learners in South African Schools - Willy Mwakapenda, Joseph Dhlamini
B38 11 - 11 TI-Nspire with General Mathematics - John Llewelyn, Stuart Payne
B39 11 - 11 Designing the Year 11 General Maths Advanced Course in Order to Prepare Students to Year 12 Specialist Maths - Nalini Ekanayake
B40 11 - 12 Specialist Mathematics 2009 and Beyond - Allason McNamara, Philip Swedosh, Dean Lamson

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SESSION C: 2:00pm - 3:00pm Thursday 3rd December

CK1 2 – 8  Making the Connection: Helping Struggling Students Achieve in Mathematics - Anita Chin

CK2 7 – 11  Toilet Paper, Red-Heads and Zip Ties - Anthony Harradine

CK3 10 – 12  CAS Activities for the Classroom - Allason McNamara

C4  Prep – 1  Learning About Number - Natural and Complex for Children - Rosemary Irons

C5  Prep – 6  Getting the Most Out of Professional Development: Teachers Taking Control - Anne Scott, Philip Clarkson, Andrea McDonough

C6  Prep – 6  Articul8 Maths - Donna Ludvigsen, Melinda Williams

C7  Prep – 6  Nine & Over: Adventures in Place Value - Douglas Williams

C8  Prep – 8  Empowering Students to Make their Mathematical Thinking Visible - Lorraine Kennedy

C9  Prep – 12  Mathematics User Group for Experienced Users - Brendan Colley

C10 Prep – 12  Hands-on Computer Workshop with Kinetic Education - Mary Sanghvi, Jonathan Sanghvi

C11 Prep - Adult  Mathematics in Art and Architecture - Jeanne Carroll

C12 1 – 6  Who Benefits in Peer Tutoring - The Tutor, The Tutee or the Teacher? - Carol Butel

C13 2 – 6  Handling Fractions - Peggy Ashton, Jenny Vincent

C14 3 – 5  Place Value. Why Do Some Students Struggle with Place Value? - Deborah Gibbs

C15 3 – 6  Assisting Students to Learn and Recall Basic Number Facts - Catherine Pearn

C16 4 – 6  Action Research in Maths - Whole School Change - John Davidson, Jill Howell, Tess Haycox

C17 5 – 6  Developing a Unit of Work on Structure Using an Intensive Coaching Model - Peter Sanders, Christine Powers

C18 5 – 6  Using Maths to Test Our Ideas - Daniel Avano, Bronwyn Quint

C19 5 – 8  Lesson Study - Kathryn Palmer, Caroline Mazurkiewicz

C20 5 – 8  Essential Excel - Sue Inness

C21 5 – 8  Using Maths Extension Materials in the Upper Primary/ Junior Secondary School - Ian Bull

C22 5 – 9  Reciprocal Teaching in Maths - Yvonne Reilly, Jodie Parsons, Liz Bortolot

C23 5 – 9  Real Classroom Feedback - Activespressions - Lauren O'Grady

C24 5 – 10  Maths Is An Option. How Do We Make Students Opt For It? - James Somerville-McAlester

C25 5 – 10  Hands-on Ratio and Proportion - Ian Lowe

C26 5 – 10  Teaching Algebra to Lower Achieving Mathematics Students - Tim Lam Toh

C27 5 – 10  Laying It All Out - Allan Turton

C28 5 – 10  Tinkering With Real Data - Andrew Stewart, Rachel Bucshuazy

C29 7 – 10  i-maths in the Middle School - Paul Nugent, Jo Bradley

C30 7 – 10  Web 2 and Mathematics - Kristy Graham

C31 7 – 10  Bungee Jumping and the Leaning Tower of Poser - Denis Day, Subra Muniandy

C32 7 – 10  Arithmetika-Cheetah: e-learning and e-assessment Workshop! - Tony Allan

C33 8 – 10  Effective Secondary Teaching About the Mathematics of Losing on Chance Gambling - Donald Smith

C34 8 – 10  Learning Activities for Middle School Classes Using CAS Technology - Jennifer Curtis

C35 9 – 10  Digital Interactive Maths Database (DIM) - Dubravka Maksimovic, Sandra Maksimovic

C36 9 – 12  Increasing Student Engagement in the Senior Years - Karen Crothers, Leah Whiffin

C37 9 – 12  Indices on the TI-Nspire CAS - Russell Brown, Maree Timms

C38 10 – 11  Promoting Functional Thought in Students - Amanda Legg, Cathy Drury

C39 11 – 11  Designing the Year 11 General Maths Advanced Course in Order to Prepare Students to Year 12 Specialist Maths - Nalini Ekanayake

C40 11 – 12  How to Prepare Analysis/Modelling Tasks for VCE Mathematical Methods - Peter Hadji

C41 11 – 12  Moving on with the Casio ClassPad in Further Maths - June Warren, Maria Schaffner

C42 12 – 12  The Roller Coaster Application Task Review - Michael Cody

C43 12 – 12  An Initiative to Assist Student Transition to, and Outcomes in, University Mathematics - Narwin Perkal

SESSION C-D: 2:00pm - 4:15pm Thursday 3rd December

C-D1 Prep - 6  Mathematics (Numeracy) Interview and VELS, Progression Points and the Mathematics Continuum - Of Primary importance! - Pamela Hammond

C-D2 4 – 8  “Now I See”: A Visual Way of Teaching for Understanding - Jan Cavanagh

C-D3 7 – 10  Online Resources For Maths - Hang Nguyen

C-D4 8 – 10  Using ‘Algebra Blocks’ to Teach Integers, Expansion and Factorisation - Michael O'Reilly, Norrian Rundle
C-D5  9 - 10  CAS-Active Approaches to Years 9-10 Mathematics - David Tynan, Peter Flynn
C-D6  9 - 12  Bezier Curves: Integrating Number, Geometry and Algebra - Stephen Arnold
C-D7  10 - 12  A New Approach To The Conics - Hussein Tahir
C-D8  10 - 12  Where am I on the CAS Continuum? - Peter Fox, Frank Moya
C-D9  10 - 12  Creating Learning Objects - Neale Woods
C-D10  11 - 12  Statistics Workshop for the TI-Nspire Handheld - Peter Jones

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

DK1  Prep - 6  Challenging Children to Think: Teacher Behaviours That Prompt Children to Probe Their Mathematical Understanding - Jill Cheeseman
DK2  7 - 11  CAS Opportunities in Levels Other Than the VCE - Kevin McMenamin
DK3  9 - 12  Ten Mathematical Gems - Marty Ross
D4  Prep - 6  Exploring Coaching for Effective Mathematics Instruction Using the e5 - Naomi Sordello, Paula Shaw
D6  Prep - 6  Artic18 Maths - Donna Ludvigsen, Melinda Williams
D7  Prep - 6  Playing with Blocks: Investigative Maths for the Whole School - Chris Sharp, Lisa Audino, Sarah Childe
D8  Prep - 6  The e5 Instructional Curriculum and Open-Ended Numeracy Tasks - Fiona Pratt, Latham Burns, Amanda McLean
D9  Prep - 6  It's All About SAM-Antics - Loretta Weedon, Jo Adams
D10  Prep - 6  Running a Maths Games Day at your Primary School - Colleen Monaghan
D11  Prep - 12  Mathematics User Group For New Users - Claire O’Connor
D12  Prep - 12  Hands-on Computer Workshop with Kinetic Education - Mary Sanghvi, Jonathan Sanghvi
D13  Prep - Adult  What Counts in Imaging? - Robyn Winchester
D14  1 - 10  Using Progression Points for Diagnostic (Formative) Assessment: Chance - John Gough
D15  2 - 6  Handling Fractions - Peggy Ashton, Jenny Vincent
D16  2 - 10  Problem Solving with Pentagon Triangles - Douglas Williams
D17  3 - 6  Decimals Done the LAB Way - Janeane Anderson, Anna Bock
D18  5 - 8  Lesson Study - Kathryn Palmer, Caroline Mazurkiewicz
D19  5 - 8  Reasoning and Communication in the Mathematics Classroom - Some ‘What’ Strategies - Berinderjeet Kaur
D20  5 - 8  Developing Understanding of Fractions Using Line Numbers and Measurement Models - Catherine Pearn, Max Stephens
D21  5 - 9  Engage Me Don’t Enrage Me - Engaging Software for Maths in the Middle - Lauren O’Grady
D22  5 - 10  Tinkering With Real Data - Andrew Stewart, Rachel Bucshuazy
D23  6 - 8  Adventures With the Virtual Mathomat - Ted Marks, Steve Lewis, John Lawton
D24  7 - 7  Becoming More Interactive in Year 7 Maths - Michael Symons, Rhonda Keyser
D25  7 - 9  Grouping and Strategies for Differentiation of the Mathematics Curriculum Junior Secondary - Sue Ditchfield
D26  7 - 10  Bungee Jumping and the Leaning Tower of Poser - Denis Day, Subra Muniandy
D27  7 - 10  i-maths in the Middle School - Paul Nugent, Jo Bradley
D28  7 - 10  Problem Solving for Able Students - Derek Holton
D29  7 - 10  “5-4-3-2-1 Boards Up!” - Increasing Classroom Engagement Using Mini-Whiteboards - Vebica Evans
D30  7 - 10  Interactive Maths Series Software Training (Computer Workshop) - Paul Rehill
D31  8 - 9  Using Problem Solving to Engage Students in Their Study of Linear Equations - Russell James
D32  8 - 10  Hands-on Scale Drawing and Trigonometry - Ian Lowe
D33  9 - 9  Year 9 Enriched - Rennae Miszkurha, Lisa Saffin
D34  9 - 10  Sailing into Trigonometry - Anthony Harradine
D35  9 - 10  Introducing TI-Nspire CAS at Years 9 and 10 - Natalie Caruso
D36  9 - 11  Get Excited About the Mathematics in Surveying - An Innovative Mathematics Excursion - Mary Barnes
D37  9 - 12  Indices on the TI-Nspire CAS - Russell Brown, Maree Timms
D38  9 - 12  Advanced GeoGebra - Brendan Owen, Cameron Hallowell
D39  10 - 10  Working Mathematically on the ClassPad - Craig Tellefsen, Jamal Gorgesse
D40  10 - 12  Calculators - The Cane Toads of the Education System? - Gael McLeod
D41  11 - 11  An Overview of Year 11 Mathematical Methods Course for the Teachers Who Are New to Teaching this Subject - Nalini Ekanayake
D42  12 - 12  The Roller Coaster Application Task Review - Michael Cody
### SESSION E: 9:00am - 10:00am Friday 4th December

| EK1 | 3 - 7 | Contemporary Content Topics for the National Curriculum - Calvin Irons |
| EK2 | 7 - 10 | Developing Mathematical Language - Key to Conceptual Development - Brian Tweed |
| EK3 | 9 - 12 | Graphics Calculator Technology - Black Box or a Pandora's Box, it's Your Decision - Russell Brown |
| E4 | Prep - 6 | Running a Maths Games Day at your Primary School - Colleen Monaghan |
| E5 | Prep - 6 | Lessons From Japan - What Can we Learn From Japanese Structured-Problem-Solving Lessons? - Susie Groves |
| E6 | Prep - 6 | It's All About SAM-Antics - Loretta Weedon, Jo Adams |
| E7 | Prep - 6 | The e5 Instructional Curriculum and Open-Ended Numeracy Tasks - Fiona Pratt, Latham Burns, Amanda McLean |
| E8 | Prep - 10 | MAV Maths Talent Quest - Working Mathematically - Investigation Projects - June Penney, Kelly Gallivan, Breigh Willcox |
| E9 | Prep - 12 | Mathletics User Group for Experienced Users - Brendan Colley |
| E10 | Prep - Adult | What Counts in Imaging? - Robyn Winchester |
| E11 | 1 - 4 | Developing a Whole School Approach to Addition and Subtraction Mental Computation - Angela Rogers, Bernadette Long |
| E12 | 2 - 5 | Place Value - The Foundation of all Mental and Written Computations - Adele Webster, Chris Lynch, Valerie McCallum |
| E13 | 2 - 8 | Making the Connection: Helping Struggling Students Achieve in Mathematics - Anita Chin |
| E14 | 3 - 10 | Teach For Understanding First - Ian Lowe |
| E15 | 3 - 10 | Problem Solving with Trisquares - Douglas Williams |
| E16 | 4 - 6 | Action Research in Maths - Whole School Change - John Davidson, Jill Howell, Tess Haycox |
| E17 | 4 - 7 | Fun with Fractions - Judith Callaghan |
| E18 | 5 - 8 | Developing Understanding of Fractions Using Number Lines and Measurement Models - Catherine Pearn, Max Stephens |
| E19 | 5 - 8 | Reasoning and Communication in the Mathematics Classroom - Some ‘What’ Strategies - Berinderjeet Kaur |
| E20 | 5 - 8 | Data Loggers for Mathematics - Daniel Avano, Bronwyn Quint |
| E21 | 5 - 8 | Working Mathematically: Australasian Problem Solving Mathematical Olympiads Workshop - Anne Prescott, Jon Phegan |
| E22 | 5 - 9 | Engaging Middle Years Students in Mathematics Using the MATHOMAT - Ted Marks, Steve Lewis |
| E23 | 5 - 12 | The Classroom Organiser: A Planning, Organising and Tracking System - Bill Murray |
| E24 | 7 - 10 | Whole Class Activities for Year 7 to 10 - Theresa Pagon, Lyn Elms |
| E25 | 7 - 10 | The Daramalan Experience: Electronic Assessment Success! - Tony Allan |
| E26 | 7 - 10 | MacMillan Active: A New Concept in Homework Programs for 7-10 - Monique Miotto, Ingrid Kemp |
| E27 | 7 - 12 | Web2.0 Tools and Mathematics Education - Marcel Van Otterdyk |
| E29 | 7 - 12 | So This Will Be/Has Been Your First Year of Teaching Mathematics? - Rob Vermay |
| E30 | 9 - 10 | Tips for Teaching with Technology - Lynda Ball, Robyn Pierce |
| E31 | 9 - 10 | Sailing into Trigonometry - Anthony Harradine |
| E32 | 9 - 10 | Introducing Casio ClassPad at Years 9 and 10 - Natalie Caruso |
| E33 | 9 - 11 | Get Excited About the Mathematics in Surveying - An Innovative Mathematics Excursion - Mary Barnes |
| E34 | 9 - 11 | eActivities on the Casio ClassPad - Rohan Barry |
| E35 | 9 - 12 | Advanced GeoGebra - Brendan Owen, Cameron Hallowell |
| E36 | 10 - 10 | The Plague, Swine Flu and Exponential Functions: Introducing CAS (TI-Nspire) at Year 10 - Rita Visser, Ian Edwards, John Buruma |
| E37 | 10 - 11 | Promoting Functional Thought in Students - Amanda Legg, Cathy Drury |
| E38 | 10 - 12 | Calculators - The Cane Toads of the Education System? - Gael McLeod |
| E39 | 10 - 12 | Problem Solving with the TI-Nspire CAS Calculator - Pauline Holland, Shirley Griffith |
| E40 | 11 - 12 | Virtual Learning Network - Maths Methods Online - Kyle Staggard, Anne Grealy |

### SESSION F: 10:45am - 11:45am Friday 4th December

| FK1 | Prep – 4 | Open-Ended Maths Tasks: Some Hints for Their Use and Development - Andrea McDonough |
| FK2 | 5 – Adult | Latin Squares: The Maths Behind Sudoku Puzzles - Ian Wanless |
| F3 | K – 2 | Early Number Sense - Vivienne Belcher, Elizabeth Johnson |
F4 Prep - 6 Professional Development: New Approaches for the New Millennium - Patrick Walsh, Lisa Weston, Jennifer Bowden
F5 Prep – 6 Tomorrow’s Mathematics Classroom is Ready Today! - Gerard Tuffield
F6 Prep – 6 Software for Primary School - Tony Collison
F7 Prep – 10 MAV Maths Talent Quest - Working Mathematically - Investigation Projects - June Penney, Kelly Gallivan, Breigh Wilcox
F8 Prep - 10 Steering a Course for Better Mathematics Leadership - Valerie Everist, George Toth
F9 Prep - 12 Mathletics User Group For New Users - Claire O’Connor
F10 1 - 4 Developing a Whole School Approach to Addition and Subtraction Mental Computation - Angela Rogers, Bernadette Long
F11 1 - 6 Students’ Transition Between Contexts of Mathematical Practices in Ghana - Ernest Kofi Davis, Wei Tiong Seah, Alan Bishop
F12 1 - 7 Linking Number with Measurement and Geometry - Linda Cheeseman, Anuja Singh
F13 1 - 7 Strategies that Promote Flexible Mathematical Thinking - Anita Chin
F14 3 - 8 Fantastic Folding Feats - Allan Turton
F15 3 - 9 The 24 Game and 24 Challenge Tournament - Amanda Cousins
F16 3 - 10 Differentiating Instruction to Improve Learning - Ian Lowe
F17 3 - 10 A Revaluation of Newman’s Error Analysis - Allan White
F18 3 - 10 Star Numbers and Other Investigations with Poly Plug - Douglas Williams
F19 4 - 7 Fun with Fractions - Judith Callaghan
F20 4 - 10 D.I.Y. e Resources on Excel - Peter Clerks
F21 5 - 6 Developing a Unit of Work on Structure Using an Intensive Coaching Model - Peter Sanders, Christine Powers
F22 5 - 6 Using Technology to Enhance Problem Solving - Paul Negri, Alan Brookes
F23 5 - 8 Working Mathematically - Problem Solving - Daniel Avano, Bronwyn Quint
F24 5 - 8 Working Mathematically: Australasian Problem Solving Mathematical Olympiads Workshop - Anne Prescott, Jon Phegan
F25 5 - 8 Discovering the Unfamiliar in the Familiar - A Story of Natural Numbers - David Demant
F26 5 - 10 Teaching Algebra to Lower Achieving Mathematics Students - Tin Lam Toh
F27 7 - 9 Grouping and Strategies for Differentiation of the Mathematics Curriculum Junior Secondary - Sue Ditchfield
F28 7 - 9 Exploration of Rich Concrete Task to Consolidate Mathematical Understanding - Michelle Moses
F29 7 - 10 What’s the Angle? - Denis Day, Subra Muniandy
F30 7 - 10 Specific Mathematics Assessments that Reveal Thinking: Making Assessment for Learning Practical - Kaye Stacey, Beth Price
F31 7 - 10 Hunted, Sourced & Quartered - Finding Quality IWB Maths Activities Without the Hassle - Vebica Evans
F32 7 - 11 Students Use a Video Presentation to Help Their Maths Skills - Our Experiences - Geoff Simmonds, Kathleen Ireland
F33 7 - 12 Smarter Statistics - Don’t Go Down With The Titanic - Andrew Stewart
F34 8 - 9 Using Problem Solving to Engage Students in Their Study of Linear Equations - Russell James
F35 8 - 10 Learning Activities for Middle School Classes Using CAS Technology - Jennifer Curtis
F36 8 - 11 Non-Routine Problem Solving Using ‘Geometer’s Sketch Pad’ - Karim Noura
F37 8 - Adult Reducing Teacher Workload Through the Use of Digital Rubrics - Alexander Young
F38 9 - 11 eActivities on the Casio ClassPad - Rohan Barry
F39 10 - 10 Introducing CAS (TI-Nspire): Year 10 Circle Geometry - Rita Visser, Ian Edwards, John Buruma
F40 10 - 10 Geometer’s Sketchpad in Year 10 Mathematics Classroom - Bozenna Graham
F41 10 - 12 Problem Solving with the TI-Nspire CAS Calculator - Pauline Holland, Shirley Griffith
F42 10 - 12 EMPower - New Approaches to Numeracy for VCAL and Adult Students - Beth Marr
F43 11 - 12 Virtual Learning Network - Maths Methods Online - Kyle Staggard, Anne Grealy
F44 12 - 12 Pitfalls and Hurdles in Past Further Mathematics Examinations - Rob Vermay
F45 12 - 12 Counter-Examples in Probability and Statistics - John Kermond

SESSION F-G: 10:45am - 1:00pm Friday 4th December

F-G1 Prep - 4 Using Pedagogical Tools to Enhance Number Intervention P-4 - Gerard Lewis, Andrea Dineen
F-G2 Prep - 6 Making Sure You Get Off to a Great Start in Maths in 2010 - Rob Vingerhoets
F-G3 Prep - 6 Improving Student Learning in Mathematics Through the Explicit Teaching of Language - Joanne Riddell, Jackie Vella, Michelle Coupland
F-G4 Prep - 10 Numeracy in Practice: What Does it Mean For Your School? - Catherine Pearn
Max Stephens, Dianne Siemon

F-G5 3 - 12 Kids Teaching Kids via Tablet PC, Moodle and Student-Created Screencasts - Eric Marcos, Tony Richards

F-G6 5 - 8 ‘Putting a Spotlight on Division’ - Erin Hooper, Rose Golds, Heather Lewis

F-G7 5 - 10 Paper Geometry vs Orange Geometry - Hands-On - István Lénárt

F-G8 5 - 11 Having Some Fun With Numeracy and Maths - Dave Tout

F-G9 6 - 9 Fruit Sausages - Anthony Harradine

F-G10 9 - 12 Bezier Curves: Integrating Number, Geometry and Algebra - Stephen Arnold

F-G11 10 - 12 A New Approach To The Conics - Hussein Tahir

F-G12 10 - 12 TI-Nspire CAS at the Distance Education Centre Victoria - Neale Woods

F-G13 10 - 12 Where am I on the CAS Continuum? - Peter Fox, Frank Moya

F-G14 11 - 12 Statistics Workshop for the TI-Nspire Handheld - Peter Jones

SESSION G: 12:00pm - 1:00pm Friday 4th December

GK1 Prep – Adult The Australian Mathematics Curriculum and Resources - Sue Ferguson

GK2 4 - 10 Mind Your Language: Speaking In and About the Mathematics Classroom - David Clarke

GK3 7 - 11 Developing Numeracy Using a Critical Citizen’s Platform - A Prime Importance!
- Shane O’Connor, Roslyn Mullins

G4 K - 2 Early Number Sense - Vivienne Belcher, Elizabeth Johnson

G5 Prep - 2 Working Mathematically with Infants - Douglas Williams

G6 Prep - 4 Number Sense in the Early Years - Sharlyn Livy

G7 Prep - 5 Using a Calculator Effectively in the Primary Classroom - Linda Baron, Mary Burns

G8 Prep - 6 Making Maths the Highlight of the Week - Sarah Macdonald

G9 Prep - 6 SAM-ling Something New - Loretta Weeden, Jan Walker, Helen McClelland

G10 Prep - 6 Differentiating the Curriculum - Kim Kirkpatrick, Sherilyn Butler

G11 Prep - 6 Software for Primary School - Tony Collison

G12 Prep - 12 The Mixer-upper-er: A Systematic Way to Group Students - Peter Cox

G13 1 - 6 Students’ Transition Between Contexts of Mathematical Practices in Ghana
- Ernest Kofi Davis, Wee Tiong Seah, Alan Bishop

G14 3 - 10 Unreal Footy = Real Learning + Unreal Fun - Phill Cristofaro

G15 3 - 10 A Revaluation of Newman’s Error Analysis - Allan White

G16 4 - 10 Why Some Groups Work and Some Do Not - Gaye Williams

G17 5 - 8 Working Mathematically - Problem Solving - Daniel Avano, Bronwyn Quint

G18 5 - 8 Discovering the Unfamiliar in the Familiar - A Story of Natural Numbers - David Demant

G19 5 - 9 Reciprocal Teaching in Maths - Yvonne Reilly, Jodie Parsons, Liz Bortolot

G20 6 - 10 Activities that Promote Thought and Discussion - Janine Angove

G21 7 - 7 Establishing a Learning Journey for Year 7 Mathematics Students - Ian Edwards

G22 7 - 8 MATERial Girls: A Cultural Change, Testing for and of Learning - Valerie Everist, Deborah Gould

G23 7 - 9 Using Maps - Ruth Goddard

G24 7 - 10 What’s the Angle? - Denis Day, Subra Muniandy

G25 7 - 10 Problem Solving for Able Students - Derek Holton

G26 7 - 10 From Conceptual Understanding to Fluency in Algebra; A Program Utilising Instructional Games - Jane Irvin

G27 7 - 10 Interactive Maths Series Software Training (Computer Workshop) - Paul Rehill

G28 7-10 Arithmetika-Cheetah: e-Learning and e-Assessment Workshop! - Tony Allan

G29 7 - 11 Students Use a Video Presentation to Help Their Maths Skills - Our Experiences
- Geoff Simmonds, Kathleen Ireland

G30 7 - 12 Casio ClassPad 101 - Elena Zema

G31 7 - 12 Real Numbers - David Leigh-Lancaster

G32 7 - 12 Pedagogical Gains from Wireless Networking TI-Nspires - Ray Williams

G33 9 - 9 Year 9 Enriched - Rennae Miszkurha, Lisa Saffin

G34 9 - 10 Teaching Surds with Technology: Exploring, Explaining, Generalising - Roger Wander, Michael Lane

G35 9 - 11 The Great Rat Race - Brett Stephenson

G36 9 - 12 Using Interactive and Online Technologies to Support Student Learning - Sarah Day

G37 9 - 12 The Mathematical Footy Show (Rugby Edition) - Marty Ross, Burkard Polster

G38 9 - 12 Sliders on the TI-Nspire CAS - Russell Brown

G39 10 - 10 Transformations with Technology - Susan Sanders, Frank Van Den Boom, Robyn Pierce

G40 10 - 10 Geometer’s Sketchpad - Surd is the Word - Hayden McQueenie, Ian Rowland, Lloyd Stagg

G41 10 - 12 Using Land Surveying for General Maths 1 & 2 and Further Maths 3 & 4 - Rob Daniel

G42 11 - 12 Exploring Sunrise and Sunset Data with TI-Nspire - Neville Windsor
SESSION H: 2:00pm - 3:00pm Friday 4th December

HK1 Prep - Adult  How to Become a Human Lightning Calculator - Burkard Polster

HK2 5 - 9  Algebraic Thinking: Generalising Number and Geometry to Express Patterns and Properties Succinctly - George Booker

H3 Prep - 4  Number Sense in the Early Years - Sharyn Livy

H4 Prep - 4  Developing Early Place Value Understanding - Charlotte Rawcliffe, Alison Howard

H5 Prep - 5  Using a Calculator Effectively in the Primary Classroom - Linda Baron, Mary Burns

H6 Prep - 6  Making Maths the Highlight of the Week - Sarah Macdonald

H7 Prep - 6  SAM-pling Something New - Loretta Weedon, Jan Walker, Helen McClelland

H8 Prep - 6  Differentiating the Curriculum - Kim Kirkpatrick, Sherilyn Butler

H9 Prep - 6  Making the Most of Mathematics Manipulative Materials - Paul Swan, Linda Marshall

H10 Prep - 6  Using Children's Literature to Enhance Engagement and Learning in Mathematics - Pamela Hammond

H11 Prep - 8  Empowering Students to Make their Mathematical Thinking Visible - Lorraine Kennedy

H12 Prep - 8  Teaching Mathematics at Stage Not Age - Alan McSeveny

H13 Prep - 12  The Mixer-upper-er: A Systematic Way to Group Students - Peter Cox

H14 Prep - 12  Moving to Mastery with Mathematics - Kate Williamson

H15 1 - 7  Making Maths Marvellous with Manchester, Movement and Manipulatives - Gabrielle West

H16 1 - 7  Interactive Mathematics in the Primary Classroom - Lauren O'Grady

H17 1 - 12  An Interactive Whiteboard for Under $200 - David Phillips, Lynette George

H18 3 - 10  What Factors Makes a Numeracy Item Difficult? - Dave Tout

H19 3 - 10  Digging Into Hands-on Tasks - Douglas Williams

H20 5 - 8  Geometry in Art and Design: Escher, the MATHOMAT and VELS - Susie Groves

H21 5 - 8  Data Loggers for Mathematics - Daniel Avano, Bronwyn Quint

H22 5 - 8  A Well-Balanced Numeracy Program - Mary Reynolds

H23 5 - 8  Sundials and Other Useful Solar Instruments - Tim Byrne

H24 5 - 10  Maths Is An Option. How Do We Make Students Opt For It? - James Somerville-McAulester

H25 6 - 8  Adventures With the Virtual Mathomat - Ted Marks, Steve Lewis, John Lawton

H26 6 - 10  School of Trivia: A Jammed Packed Frenzy of Maths, Pop Culture, Music, Film and Yes Maths!!!! - Peter Curry

H27 7 - 9  Using Maps - Ruth Goddard

H28 7 - 10  From Conceptual Understanding to Fluency in Algebra; A Program Utilising Instructional Games - Jane Irvin

H29 7 - 10  Suddenly, We Had Engaged Middle Years Students? How Did That Happen? - Gaye Williams, Brenda Menzel, Brad Sheridan

H30 7 - 10  Using Educational Software in Mathematics - Andrew Townsley

H31 7 - 10  Web 2 and Mathematics - Kristy Graham

H32 7 - 10  Row and Run Using the TI-Nspire Software - Pauline Rocks

H33 7 - 10  Fibonacci and Proportions - Diane Itter, Lex Milne, Terry Mills

H34 7 - 12  Pedagogical Gains from Wireless Networking Ti-Nspires - Ray Williams

H35 7 - 12  Casio ClassPad 101 - Elena Zema

H36 8 - 10  Interactive Geometry on the ClassPad - Ian Thomson

H37 9 - 10  Teaching Surds with Technology: Exploring, Explaining, Generalising - Roger Wander, Michael Lane

H38 9 - 11  The Great Rat Race - Brett Stephenson

H39 9 - 12  Using Interactive and Online Technologies to Support Student Learning - Sarah Day

H40 9 - Adult  I Have Never Used a Casio ClassPad - Anthony Harradine

H41 10 - 10  Geometer's Sketchpad - Surd is the Word - Hayden McQueenie, Ian Rowland, Lloyd Stagg

H42 10 - 12  Using Land Surveying for General Maths 1 & 2 and Further Maths 3 & 4 - Rob Daniel

H43 11 - 12  Exploring Sunrise and Sunset Data with TI-Nspire - Neville Windsor

H44 11 - 12  Maths Methods (CAS) - Additional Content in the CAS Course - Frank Moya

H45 11 - 12  Taking Real Data Further Mathematically - Andrew Stewart, Rachel Bucsuhaey

H46 12 - 12  An Initiative to Assist Student Transition to, and Outcomes in, University Mathematics - Narwin Perkal
SESSION DETAILS
SESSION A: 10:45am - 11:45am Thursday 3rd December

AK1 Mathematics - Of Prime Importance. Is it?
Keynote

Douglas Williams - Black Douglas Professional Education Services
Ten years after Year 8 Dani writes: "I have always been a good student and achieved high marks but mathematics (apart from algebra - I still can't understand why I can grasp that and not simple addition and multiplication!) was always a foreign language to me so I didn’t have any interest in that area. Studying the Sphinx problem sparked my interest and got me actively involved in something I could piece together and evaluate, rather than just work out on paper. Because I was interested by it all, I actually learnt a lot without realising it, and had a strong foundation to relate other problems to in the future. So in that sense, I suppose the Sphinx has helped me no end. I am still terrible at maths but I have some good practical knowledge arising from the Sphinx problem that I can draw upon if I need to." If there is anything in this reflection that stimulates you to think about the craft of mathematics teaching then come along, meet Dani, hear other stories from other classrooms and consider yet again what comes first in your teaching. Is mathematics really of prime importance?

Doug Williams is a story-teller in mathematics education. His role is to work with colleagues to collect and retell stories of success from classrooms. This work involves professional development sessions for teachers; working in classrooms to act out stories; and publishing stories, in the main through websites. His teaching background is in both primary and secondary schools and he has also worked as a teacher trainer. He has broad experience working with systems to support curriculum shift and has worked widely with teachers whose particular focus is supporting Indigenous students to achieve success in mathematics. His major work includes contribution to, and management of, the Mathematics Task Centre, Maths300 and Calculating Changes. He has had the opportunity to work with teachers and students from Northern Territory bush schools to snow-bound schools in Sweden and has held the position of Director, Mathematics Professional Services, Curriculum Corporation.

AK2 Wonderment: Stimulating Children’s Thinking in Mathematics
Keynote

Paul Swan - Edith Cowan University
Too often children came to class to watch teachers (us) work. In this session, I would like to suggest that in our attempts to help children learn mathematics, sometimes we can do too much. We need to allow children more time to think, ponder and wonder in mathematics. In order to do this, obviously we will have done a lot of work behind the scenes to set up situations that will engage children and encourage them to reason and apply the mathematics they are learning. Several ideas for encouraging wonderment in mathematics will be shared. While this session will be presented in lecture style many practical suggestions and ideas will be provided to stimulate children’s thinking in mathematics.

Note: Teachers may wish to bring a camera to photograph some of the ideas and activities that are presented.

Paul Swan is a senior lecturer in mathematics education at Edith Cowan University, Perth WA. He received his PhD for his work on how children make computational choices and how effective those choices were. He is the author and co-author of many books designed to help children learn mathematics. He has children attending both primary and secondary school and is well aware of the issues teachers face in trying to create classroom environments conducive to the learning of mathematics. As such, Paul provides practical suggestions for teaching mathematics that may be applied directly to the classroom.
Peter Fox - Elisabeth Murdoch College

What do you want your students to learn about mathematics? How much time do your students spend practicing skills? How much time do your students spend thinking? What do we know about how students learn, and more specifically, how they learn mathematics? Recent developments in brain imaging technology allow researchers to determine which areas of the brain are active when the mind is engaged in mathematics. The brain responds differently when presented with 2 instead of two. There are differences in parietal lobe activity depending on the nature of a question and the child’s prior learning. Dyscalculia may be just as prevalent as dyslexia. What implications does this all have when teaching mathematics? Checking homework, marking the roll, ten quick questions; a great way to start a lesson; perhaps not. It is a great strategy to encourage immediate engagement whilst completing administrative tasks, but this may come at a significant cost. This presentation will look at how the latest research has influenced my teaching and student learning. Examples applicable to a range of year levels will be included in this presentation to illustrate how we might help students make the most of their learning opportunities. How questions can be changed from rote-rehearsal to elaborate rehearsal to encourage student thinking?

Peter Fox is a secondary Mathematics teacher with 20 years teaching experience, he has a passion for teaching, learning and the appropriate integration of technology in mathematics. Peter has worked for Melbourne University (RITEMaths project), Monash University (Teacher Education) and Texas Instruments (Education Manager). He was involved in the implementation of a notebook computer program at Frankston High School when a Toshiba 1910 notebook running Windows 3.1 on a black and white monitor was the latest in computing technology! More recently he was involved in the CAS pilot in Victoria (Mathematical Methods-CAS) and New Zealand and has worked on the development of TI-Nspire (CAS) and TI-Navigator with Texas Instruments. He currently teaches part time at Elisabeth Murdoch College and works as an educational consultant helping schools and education systems implement CAS technology from Years 7 to 12. His recent studies into how the brain learns mathematics has consolidated his faith in the appropriate use of technology and considerably changed the way he teaches mathematics.

A4  Learning About Number - Natural and Complex for Children
Lecture  Years: Prep - 1
Rosemary Irons - Queensland University of Technology
Learning about number is natural for children as they work with resources, draw pictures and recognise symbols in a mathematics rich environment. The learning environment includes a range of number representations such as different arrangements of quantity, five and ten frame organisers and number tracks. These models help young children develop a strong conceptual understanding of number that enables them to represent number in meaningful ways and thus enjoy working with numbers.

Repeated as C4

A5  Stepping Stones: The Next-Generation Mathematics Program!
Lecture  Years: Prep - 2
Gerard Tuffield - Origo Education
This session will demonstrate ORIGO Educaton’s new online mathematics program that includes teaching modules and lessons plans that promote differentiated instruction and which incorporates interactive teaching tools, games for reinforcing strategies, ready-to-project lesson illustrations and diagrams, digital tools for bringing mathematics big books to life, a glossary of mathematical terms, and streamed professional development videos. (Commercial Presentation)

Not repeated

A6  Getting the Most Out of Professional Development: Teachers Taking Control
Lecture  Years: Prep - 6
Anne Scott - Australian Catholic University
Philip Clarkson - Australian Catholic University
Andrea McDonough - Australian Catholic University
Participants of the Contemporary Teaching and Learning in Mathematics (CTLM) project operating in eleven Catholic primary schools across Melbourne in 2008 share stories of and insights from primary classroom teachers about a process they used to change aspects of their teaching of mathematics. Some changes in practice involved: refined questioning skills, planning and use of assessments to promote classroom discourse and reflective thinking with their students. Come along and hear what they did. You might like to try something similar in your class.

Repeated as C5
Ensuring Teacher Aides are Equipped to Confidently and Competently Assist Both the Classroom Teacher and Students  

**Workshop**  
**Tracey Snape** - University of Canterbury - Education Plus  
This workshop will include many practical ideas, based on recent research findings that leaders of mathematics and teachers can share with teacher aides in Primary schools to assist them to meet the needs of learners. Small group and peer tutoring techniques will be a key component. Also emphasis will be on the use of various hands-on activities with easily attainable equipment.  

*Repeated as B8*

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Mathematics Intervention in the Early Years  

**Workshop**  
**Catherine Pearn** - University of Melbourne  
Mathematics Intervention was established to cater for children ‘at risk’ of not succeeding with Year 1 mathematics. The development and results of clinical interviews used for testing will be discussed along with strategies used to assist children overcome common difficulties identified by the testing. The importance for classroom teachers to be able to identify each child’s strategies will be stressed as a starting point for mathematics teaching in the early years. The presentation will highlight strategies used in the intervention program that can be modified for classroom teachers to incorporate into their mathematics program.  

*Repeated as B9*

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Place Value Activities and Making Links to Problem Solving  

**Workshop**  
**Greg Butler** - Camp Hill Primary School  
**Fiona Lindsay** - Camp Hill Primary School  
**Lara Manning** - Camp Hill Primary School  
Practical Place Value activities and games that will help achieve an understanding of how our number system works and make links to processes and strategies for effective problem solving. Includes sample place value units of work that build an understanding of place value, make connections to realistic problem solving and provide explicit teaching opportunities. Stuff you can take back and use in your classroom.  

*Repeated as B10*

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Who Benefits in Peer Tutoring - The Tutor, The Tutee or the Teacher?  

**Workshop**  
**Carol Butel** - University of Canterbury - Education Plus  
This workshop outlines the benefits for all students when a peer-tutoring programme is implemented as part of a quality numeracy programme. The programme is based on the work of Bob Wright and the research of Jo Boaler. Topics covered in the workshop include: how the programme was set up, the materials created and their subsequent refinements, and reflections from both the students (Year 3) and the teacher on the outcomes. The workshop will also look at the broader impact of the programme on the social dynamics of the classroom. Participants will have an opportunity to trial the materials in the workshop.  

*Repeated as C12*

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Problem Solving and Algebraic Thinking  

**Workshop**  
**Will Windsor** - Griffith University  
Algebraic thinking is a crucial and fundamental element of mathematical thinking and reasoning. It initially involves recognising patterns and general mathematical relationships among numbers, objects and geometric shapes. This workshop will highlight how mathematical problems that encourage students to think algebraically may support a deeper knowledge and understanding of mathematics.  

*Repeated as B11*

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Linking Number with Measurement and Geometry  

**Workshop**  
**Linda Cheeseman** - Team Solutions, University of Auckland  
**Anuja Singh** - Team Solutions, University of Auckland  
This interactive workshop explores ways of encouraging children to use the strategies and knowledge learnt in Number when working in the areas of Geometry and Measurement. Practical ideas for teachers of Years 1-8 will be presented in the form of small investigations.  

*Note: National Mathematics Curriculum*

*Repeated as F12*
A13 Place Value. Why Do Some Students Struggle with Place Value?  
Workshop  
Deborah Gibbs - Massey University College of Education  
Years: 3 - 5  
This workshop will explore the difficulties that students have with place value and the impact this has on their number work. This is an interactive workshop where participants will explore these difficulties through hands-on activities.

Repeated as C14

A14 Unreal Footy = Real Learning + Unreal Fun  
Lecture  
Phill Cristofaro - Brunswick East Primary School  
Years: 3 - 10  
Unreal Footy is much more than just fantasy football. It’s an online virtual learning environment specifically designed for primary and secondary schools and uses the mathematics of sport to teach students skills in calculation, prediction, chance and data, problem solving and communication. Unlike other fantasy football programs, students have to make calculations manually and use real life data week-to-week to develop their Maths, English and ICT skills. Unreal Footy supports open-ended problem based learning and facilitates communication through online forums. Teachers and students customise the program collaboratively to suit their needs and draw on higher order thinking skills to develop the program.

Note: Bring your (fully charged) laptop.

Repeated as G14

A15 Reducing Teacher Workload Through the Use of Digital Rubrics  
Lecture  
Alexander Young - FlickNTick Pty Ltd  
Years: 4 - 6  
It is universally recognised that quality teaching is the most important factor in improving students’ outcomes. This presentation will demonstrate how teachers can rapidly obtain valuable insights through assessment for learning. These insights give vital knowledge of students’ abilities and identify gaps in learning not observable under conventional assessment. I will show how teachers can automatically assess written, multiple choice and practical work. This new technique, using digital rubrics, saves teachers’ considerable time. You will see how to mark a class of 30 students in less than two minutes and obtain exceptionally powerful feedback to help improve your teaching effectiveness. (Commercial Presentation)

Not repeated

A16 Using Maths to Test Our Ideas  
Workshop  
Daniel Avano - Scienceworks  
Bronwyn Quint - Scienceworks  
Years: 5 - 6  
In this session, participants will be introduced to a practical activity that investigates how the body responds to exercise. Predictions of how and why the body responds to exercise will be investigated further through measurement and graphical representation.

Repeated as C18

A17 Engagement and Disengagement in Mathematics Learning  
Workshop  
Penelope Kalogeropoulos - Monash University  
Years: 5 - 8  
What do we do with students that are disengaged in mathematics? In this workshop, participants will be provided with an opportunity to discuss engagement and disengagement in mathematics. We will also look at strategies that teachers use and recommend to resolve disengagement. References will also be made to theories that explore the issue of disengagement in mathematics learning.

Not repeated

A18 Working Mathematically with HOTmaths  
Workshop  
Sharon London - HOTmaths  
Years: 5 - 10  
This workshop will look at open tasks and practical activities from HOTmaths and explore how they can be used in the classroom with and without technology. Many classrooms have limited access to technology, so most online resources are of little use. However, the flexible nature of the HOTmaths Learning System allows for a wide range of uses in your classroom. Participants will receive a variety of working mathematically activities to use in their classrooms. They will also learn about free resources offered by HOTmaths for all students and teachers. (Commercial Presentation)

Not repeated
A19  The Classroom Organiser: A Planning, Organising and Tracking System
Computer Workshop

Bill Murray - Mentone Girls’ Secondary College

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 compared to the teachers planned outcomes and communicate effectively with students and parents. To do all of this while creating a significant reduction in workload in the organising, planning and tracking processes that we are all supposed to use. This program has been developed for teachers, by teachers, it is available for immediate download, sample topic plans are available and there is a trial period that teachers can take advantage of. (Commercial Presentation)

Note: Please bring your own laptop, fully charged so that you can download and use the program during the session.

Repeated as E23

A20  Versatile Uses of Technology
Computer Workshop

Janine Angove - HOTmaths

Classroom access to technology varies from handheld calculators, to interactive whiteboards and even full laptop access for all students. HOTmaths is an interactive learning system that is versatile enough to offer ample resources regardless of the level of classroom access you have. This workshop will overview the use of worksheets, interatives, questions and investigations offered by HOTmaths under a range of school and home conditions. (Commercial Presentation)

Not repeated

A21  Probability that Engages Students
Room?

Peter Hartley - Carey Baptist Grammar School (Kew)
Debra Brooks - Carey Baptist Grammar School (Kew)

It is important for students to play and work with interesting probability simulations before proceeding to formal methods of solving problems. In this session we will look at a variety of computer based activities that help students build an understanding of basic concepts. Problems discussed will include the Monty Hall problem, roulette, coin, dice and card games.

Note: Please bring a USB drive to take home examples of the simulations.

Not repeated

A22  Mathematics - The Ugandan Way
Workshop

Sue Neale - Kyabram Community and Learning Centre

Sue is a qualified secondary maths teacher who is currently teaching maths to adults in a Victorian rural community centre. During 2009 she travelled to Uganda and worked in and around schools for 4 weeks. She witnessed some amazing maths teaching. Come along to this workshop and see how you can incorporate traditional Ugandan teaching into your daily maths routines. You and your students won’t be disappointed!

Repeated as B24

A23  “5-4-3-2-1 Boards Up!” - Increasing Classroom Engagement Using Mini-Whiteboards
Workshop

Vebica Evans - Pearson Education Australia

What's white, rectangular, interactive and loved by students, but doesn’t cost $3000+ for a school to install? Answer: Mini-whiteboards. A tool that is used extensively in UK classrooms, mini whiteboards allows all students time to think about questions and the opportunity to give answers. They can be used like ‘IWB voting clickers’ without the cost and set-up. In this session you will explore how you can enliven your classes using mini-whiteboards and you will learn tips for managing their use in your classroom. You will walk away from this session with some practical ideas and activities, and the confidence to use them in your classroom.

Repeated as D29

A24  Hands-on Algebra Equations and Identities
Workshop

Ian Lowe - The Mathematical Association of Victoria

There are many challenges for students in trying to understand algebraic identities. Ian will workshop several good hands-on activities that can work to assist students to understand expanding, factorising, and solving equations (both linear and quadratic).

Not repeated
A25  Air Rockets
Workshop  Years: 7 - 10
Denis Day - Glenvale School
Subra Muniandy - Glenvale School
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 B23

A26  Whole Class Activities for Year 7 to 10
Lecture  Years: 7 - 10
Theresa Pagon - Strathmore Secondary College
Lyn Elms - Jacaranda (John Wiley & Sons)
This session presents a variety of whole class activities which target concept development and consolidation of material covered in Year 7 to 10 Maths. Finding whole class activities that exactly match the concepts covered in class, contain no assumed knowledge from other areas that you haven't covered yet or use equipment that you don't have is time consuming. The activities presented are short activities, use material found in most Maths store cupboards, use the same language as that used in most Victorian textbooks and don't contain any prerequisite knowledge. Each participant will receive a booklet with sample activities. (Commercial Presentation)
Repeated as E24

A27  Macmillan Active: A New Concept in Homework Programs for 7-10
Lecture  Years: 7 - 10
Monique Miotto - Mathematics Consultant for Macmillan Education
Ingrid Kemp - Macmillan Education Australia
Is your school looking for a homework program that offers skill sheets, investigations and technology tasks directly linked to classroom topics? Do you need a program that will stand alongside your existing textbook series and demonstrate how technology is being used? In this workshop, the lead author and publisher will introduce this versatile, soon to be published, national homework program, written by a team of experienced teachers wishing to provide other teachers with accessible and engaging tasks that can be easily integrated into existing syllabi. Information packs including sample activities will be provided to all participants. (Commercial Presentation)
Repeated as E26

A28  The Daramalan Experience: Electronic Assessment Success!
Lecture  Years: 7 - 10
Tony Allan - Daramalan College Canberra
Teachers at Daramalan College in the ACT are now regularly using labs and sets of laptops in maths. Formal e-assessment has arrived big time, with teachers using computers for almost half of their formal testing. e-assessment brings both challenges and opportunities which are reviewed in this session. Computers are also being used for practice and revision of everything from basic number skills to the hardest corner of the curriculum. This year already over 50,000 sets of work have been marked for 500 students and their 20 teachers, saving hours of marking and giving students instant feedback and pleasure at monitoring their own progress. This session shows how this can be achieved in every Australian school. (Commercial Presentation)
Repeated as E25

A29  Moulding an Apprehensive CAS User Into a Confident CAS Practitioner
Workshop  Years: 7 - 11
Kevin McMenamin - The Peninsula School
This hands-on workshop will explore the workings of a digital technology (a CAS system) in the Mathematics classroom. You will have the opportunity to work with the user friendly Casio ClassPad and see how easy it is for students, and teachers, to become confident users of this handheld device. Loan calculators will be available at the session.
Note: If you have your own ClassPad calculator you are encouraged to bring it along.
Not repeated

A30  Virtual Learning Communities
Lecture  Years: 7 - 12
Adrian Camm - McGuire College
Increasing connectedness through the use of the internet and Web2.0 tools has redefined the concept of community as a defined geographic area. We are seeing increased uses of social networking tools and online spaces for truly immersive forms of learning and for a level of collaboration that is erasing traditional confines and borders. Come and learn about a VCE virtual learning community and how it has created opportunities for students to interact with each other, educators and knowledgeable adults in authentic learning experiences.
Not repeated
A31  
**Practical Reflections on Teaching Senior Secondary Mathematics in Victoria and the People’s Republic of China**

**Lecture**

*Hongchun (Holden) Lu - Nanjing Foreign Language School, China*

*Jessica Wu - The Peninsula School*

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

VCE Mathematics has now been taught at the Nanjing Foreign Language School, Xianlin Campus and the TEDA International School, Tianjin, in the PR China for several years in partnership with the Peninsula School, Victoria and the VCAA. In this workshop we will look briefly at similarities and differences with respect to the corresponding curriculum, assessment and teaching practices, and provide a snapshot with examples, anecdotes and pictures of the context, experiences, and reflections of some teachers and students doing VCE Mathematics in PR China. Participants will have the opportunity to work with some of the teaching materials, learning activities and assessment tasks and approaches used in the Nanjing Foreign Language School Xianlin Campus VCE Mathematics program.

*Repeated as E28*

A32  
**Smarter Statistics - Don’t Go Down With The Titanic**

**Lecture**

*Andrew Stewart - Presbyterian Ladies’ College*

The implementation of new technologies – in both calculators and computers – can move the teaching of statistics in Years 7 – 12 beyond repetitive calculation and display of descriptive statistics. Drawing on resources provided by, and developed during, participation in the STATSMART research project, suggestions are offered for changing statistics teaching and learning.

*Repeated as F33*

A33  
**Building Mathematics Courses in Moodle (Learning Management System)**

**Computer Workshop**

*Vanessa Rule - Jacaranda (John Wiley & Sons)*

*Chris Dunn - Viewbank College*

This workshop will allow participants to create their own online Mathematics course using Moodle, a learning management system, by integrating eBooks. Moodle is a free and open source e-learning software platform. Moodle is designed to help educators create online courses with opportunities for rich interaction. Its open source license and modular design means that people can develop additional functionality.

*Note: Participants may bring their own electronic resources on a USB stick or CD (ready to upload), however access to eBook mathematics resources will be provided.*

*Repeated as B29*

A34  
**Non-Routine Problem Solving Using “Geometer’s SketchPad”**

**Lecture**

*Karim Noura - Bayside Secondary College*

Teachers will share the experience of using more than one strategy to solve non-routine maths problems including the use of technology. In this workshop I will focus on using ‘Geometer’s SketchPad’ to visualise problem solving situations beside the traditional mathematical strategies.

*Note: Please bring your own laptop with Geometer’s SketchPad installed if possible (The software will be available to be installed on the day if needed).*

*Repeated as F36*

A35  
**Univariate Data Analysis on the TI-Nspire CAS**

**Workshop**

*Russell Brown - Educational Consultant*

*Maree Timms - Galen Catholic College*

This hands-on session will look at both categorical (dot charts, bar charts and pie charts) and numerical (dot plots, histograms, single and comparative boxplots) data sets suitable for middle school, General Mathematics and Further Mathematics students. Use individual data values and frequency tables to complete basic statistical analyses and plotting from data obtained from the ABS CensusAtSchools database.

*Note: Loan TI-Nspire CAS calculators will be available or bring your own.*

*Repeated as B34*

A36  
**Towards a 1-to-4 Approach to Mentoring Mathematics Learners in South African Schools**

**Lecture**

*Willy Mwakapenda - Tshwane University of Technology, South Africa*

*Joseph Dhlamini - Tshwane University of Technology, South Africa*

This presentation focuses on a partnership that a South African University (TUT) has with a high school that involves working with the school to mentor Grade 10 learners and develop their maths learning through group strategies.
A37  **TI-Nspire with General Mathematics**  
**Workshop**  
*John Llewelyn - Bendigo Senior Secondary College*
*Stuart Payne - Bendigo Senior Secondary College*

A practical workshop to assist teachers who might be considering a similar venture. Step by step assistance in using TI-Nspire to solve problems. Topics to be considered may include linear graphs, algebra, statistics, coordinate geometry, and vectors. There will be discussion of how calculators were used in this context.  
**Note:** Bring your own TI-Nspire calculator if you wish. Otherwise they will be provided.

**Repeated as B38**

A38  **An Overview of Year 11 Mathematical Methods Course for the Teachers Who Are New to Teaching this Subject**  
**Workshop**  
*Nalini Ekanayake - Sacred Heart Girls’ College*

Teaching Year 11 Mathematical Methods course is very challenging to teachers who have not had much experience in teaching this subject. Catering for students with varied ability and knowledge levels and preparing them for Year 12 Methods course while battling with time is not easy. In this session a teacher who has had more than 15 years of experience with VCE maths will offer teachers who are new to the subject ideas on course outline with suggested time allocations for each different topic, different ways of explaining some hard concepts, and also provide the participants sample Assessment Tasks.

**Repeated as D41**

A39  **Statistics and TI-Nspire: An Overview**  
**Lecture**  
*Peter Jones - Swinburne University*

In this session, the statistical capabilities of TI-Nspire will be demonstrated in the context of analysing real world data. In the process, both the analytic and pedagogic features of TI-Nspire will be illustrated. Topics covered will include displaying and analysing univariate data, identifying and describing relationships and regression analysis including data transformation. This is not a ‘hands-on’ presentation, but a follow-up workshop will be available for those interested.

**Not repeated**

A40  **Introduction to Further Maths and the Casio ClassPad**  
**Workshop**  
*June Warren - Penleigh & Essendon Grammar*
*Maria Schaffner - Penleigh & Essendon Grammar*

This workshop will focus on using the Casio ClassPad in Further Maths. Topics covered will be Statistics, Publishing documents and a brief look at how the calculator can be used in Module 1, 2 and 3.  
**Note:** Please bring your own Casio ClassPad calculator (some will be provided in the session).

**Not repeated**

A41  **Mathematical Methods CAS Examination 2**  
**Lecture**  
*Allason McNamara - Mount Scopus Memorial College*

Allason is the Chief Assessor for Mathematical Methods CAS Examination 2. Common errors which were made on recent examination will be discussed in detail as well as the approach to be taken in 2010. Current examination statistics will not be revealed.

**Not repeated**

A42  **Calculus on the ClassPad**  
**Workshop**  
*Craig Tellefson - Academy of Mary Immaculate*
*Jamal Gorgees - Academy of Mary Immaculate*

In this workshop the Casio ClassPad is used to present an approach to introducing, illustrating through and reinforcing differentiation. Participants will use the ClassPad to see how derivatives and integrals are performed, but also how to build an animation in the Geometry application that illustrates the rate of change of gradients and graph this on the function.  
**Note:** ClassPads will be available for all participants and no prior experience with this technology is assumed or required.

**Not repeated**
A43 Maths Methods (CAS) - Additional Content in the CAS Course
Workshop

Frank Moya - Frankston High School
This hands-on workshop is aimed at teachers who are new to the teaching of Maths Methods (CAS) Units 3 & 4. Participants will explore 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 H44

SESSION A-B: 10:45am - 1:00pm Thursday 3rd December (Extended Session)

A-B1 Do It Right the First Time
Lecture
Jan Cavanagh - Making Sense of Maths
Active learning is ‘a must’ for early childhood. Physical movement will be harnessed for demonstrating simple mathematical concepts like 2D and 3D shapes, positional and ordinal numbers, and beginning of graphing data. This workshop will focus on modeling correct Mathematics language, so that it does not have to be ‘Un-learned’ later.
Not repeated

A-B2 Improving Student Learning in Mathematics Through the Explicit Teaching of Language
Lecture
Joanne Riddell - Catholic Education Office
Jackie Vella - Catholic Education Office
Michelle Coupland - Catholic Education Office
In order to be successful at Mathematics students need to have a sound understanding of the Language of Mathematics. Through the explicit teaching of mathematical language students are given a greater chance of success. This presentation outlines ways in which teachers can explicitly teach the language of mathematics in the classroom.
Repeated as F-G3

A-B3 Kids Teaching Kids via Tablet PC, Moodle and Student-Created Screencasts
Lecture
Eric Marcos - Lincoln Middle School, USA
Tony Richards - IT Made Simple
This session focuses on the positive effects of adopting a ‘kids teaching kids’ model and screencasting. This collaborative model helped spark student interest and enthusiasm inside and outside of the math class. Our model consists of a tablet PC, class websites and student-created math video lessons (mathcasts). The videos are shared in class and on-line at Mathtrain.TV, Mathtrain.com, YouTube, TeacherTube, and our iTunes podcast. Participants will view an actual live demo of a student-created mathcast, learn how they can be used as tutoring tools and forms of authentic assessment and discover how easy it is to create them themselves.
Note: Live broadcast via the Internet, with Eric Marcos and Students in the USA and Tony Richards on-site in Australia.
Repeated as F-G5

A-B4 ‘Putting a Spotlight on Division’
Workshop
Erin Hooper - Cornwall Park District School
Rose Golds - Team Solutions, University of Auckland
Heather Lewis - Team Solutions, University of Auckland
As part of our work as mathematics advisors we have identified that developing strategies for successfully working with division is an area of weakness for both students and teachers. Our workshop offers some ideas and activities which we have successfully trialled in classrooms (Years 5-8). We will explore and analyse examples of students’ thinking, indicating how this can be used formatively as a basis for the next learning steps with division.
Repeated as F-G6
A-B5 Having Some Fun With Numeracy and Maths

Workshop

Dave Tout - Australian Council for Educational Research (ACER)

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.

Repeated as F-G8

A-B6 Online Resources For Maths

Computer Workshop

Hang Nguyen - Koonung Secondary College

Teachers will be shown a wide range of free resources and programs that are available online; including maths activities to printable worksheets to downloading a video from YouTube.

Repeated as C-D3

A-B7 Creating Interactive Documents with TI-Nspire

Workshop

Stephen Arnold - Compass Learning Technologies

Have you been seeing TI-Nspire documents doing some surprising things lately? Text and other objects appearing and disappearing under different conditions? Have you been wondering just how this is achieved, and want to include some of this ‘magic’ in your own TI-Nspire documents? These secrets are revealed here and you can begin to make these new authoring skills your own!

Note: Please bring a laptop along, preferably with TI-Nspire software installed. Trial copies will be available for installation prior to the presentation from the TI stand. TI-Nspire handhelds will be available at the presentation, but laptop is preferable for this activity.

Not repeated

A-B8 CAS-Active Approaches to Years 9-10 Mathematics

Workshop

David Tynan - Aquinas College
Peter Flynn - University of Melbourne

In this workshop, participants will examine some CAS-active tasks suitable for Years 9-10 mathematics. The emphasis will be on reflective use of such a tool across a range of middle school mathematics topics. As we will discuss, CAS combined with sound teaching approaches and well-designed tasks can enhance student algebraic understanding and skills.

Note: Please bring a CAS calculator to the workshop.

Repeated as C-D5

A-B9 Maths and Technology for Techno-Novices

Computer Workshop

Geoff Campbell - The MacRobertson Girls’ High School
Dean Lamson - Ballarat & Clarendon College

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 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 wireless keyboards and mice. 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.

Note: Participants should bring a USB stick.

Not repeated

A-B10 I Have Never Used a Casio ClassPad

Workshop

Anthony Harradine - Prince Alfred College

Need to learn how to use the ClassPad? Designed for first time users, in the space of this workshop you will learn the basic logic of the ClassPad and be ready to explore new functions by yourself. A helpful summary of what we do (and more) will be supplied.

Note: If you have one, bring along a Casio ClassPad, if you do not, then loan units will be available.

Repeated as H40
A-B11 Intermediate TI-Nspire CAS Calculator Workshop
Workshop

Neale Woods - Distance Education Centre Victoria

In this workshop, participants will have the opportunity to learn more about the advanced features of the TI-Nspire CAS calculator. Particular emphasis will be placed on geometry, animation, sliders, data capture and advanced features of the Data & Statistics application. It is expected that participants will have previous experience with using a TI-Nspire CAS calculator. Participants are expected to provide their own TI-Nspire CAS calculator.

Not repeated

SESSION B: 12:00pm - 1:00pm Thursday 3rd December

BK1 Counting – Of Prime Importance or Too Much of a Good Thing?

Keynote

Dianne Siemon - RMIT University

Counting has a long history – from cave painting records to its implicit use in the sophisticated technologies we take for granted today - counting is fundamental to how we organise and order just about every aspect of our lives. It is routinely considered in the early years of schooling but it has applications throughout schooling in the determination of event spaces, combinatorics, and number theory. But is it a big idea? In this session I will argue that while counting is one of the keys to understanding number, its importance has been over-emphasised to the detriment of many children in the upper primary and middle years of schooling who still use their fingers or ‘make-all-count-all’ strategies to determine how many. Counting is a pre-requisite for more efficient strategies, but it is certainly not the only one. Trusting the count and place value are, in my view, the big ideas that underpin the development of more efficient strategies for addition and subtraction and ultimately for multiplication and division. This session will look at what is involved in developing conceptual understanding and procedural fluency in Years P to 8.

Di Siemon PhD is a Professor of 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. Di has directed a number of other large scale research projects including the Scaffolding Numeracy in the Middle Years Project (2003-2006), the Northern Territory 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 (1999-2001). Di is a Past President of the Australian Association of Mathematics Teachers and the Mathematical Association of Victoria.

BK2 Paper Geometry vs Orange Geometry - Comparative Geometry on the Plane and the Sphere

Keynote

István Lénárt - Eötvös Loránd University

In this keynote, I will compare and contrast basic concepts of plane geometry with those of spherical geometry. Using oranges, software games and special hands-on tools for construction on the sphere, we can ask questions which seem simple at first sight: What is a straight line? What are parallels or perpendiculars? What is a circle or a triangle? What is Pythagoras’ Theorem all about? Students can better understand the meaning and significance of a geometric concept when they apply it to different surfaces, to different worlds of geometry. The topic can be connected with other subjects, such as geography, astronomy and art.

István Lénárt has a long-standing interest in geometry and its teaching. His first attempts and tests of an educational project in comparative geometry commenced in various primary and secondary schools in Budapest in 1982, with the first version of a new educational set of tools, now usually referred to as the Lénárt Sphere, being accredited by the Hungarian Ministry of Education in 1983. István has lectured to pre-service primary and middle school teachers at the Teacher Training College of Eötvös Loránd University since 1996 and to pre-service secondary teachers since 1990. István’s method of comparative geometry has been applied in several countries in Europe, the U.S.A. and in South Africa. Since 2004, it has become small, but important part of an educational program in hundreds of Hungarian schools from primary grades to universities and in-service teacher training. István has been designing geometric exhibits, and presenting talks at Hungarian exhibitions and a science museum since 2002. He has received the Beke Manó Memorial Award from the János Bolyai Mathematical Society, for lifework in mathematics education. He has given presentations, workshops and courses in many countries in Europe and elsewhere.
BK3  Beliefs, Understandings and Practice - An Impetus for Teacher Change
Keynote
Anne Lawrence - Massey University College of Education
Anne has been involved in a project examining teachers’ beliefs and understandings about teaching mathematics. In this keynote, she will discuss the successes and challenges of the project and explore how teachers’ comparison of their classroom practice with their beliefs and understandings became an impetus for teacher change. Anne Lawrence is Team Leader of the Numeracy and Mathematics advisers at the Centre for Educational Development, Massey University in New Zealand. Prior to this Anne was Head of Mathematics department at an urban co-educational school. A major component of Anne’s advisory role is to support teachers implementing the Numeracy Project in New Zealand secondary schools. Anne’s particular interest is in expanding the range of effective teaching strategies that teachers use, primarily in the area of mathematics. Recently, Anne's work has led her to explore ways of providing opportunities for teachers to examine their beliefs and values about teaching and learning mathematics.

B4  Developing Early Place Value Understanding
Workshop
Charlotte Rawcliffe - Team Solutions, University of Auckland
Alison Howard - Team Solutions, University of Auckland
This workshop will be a hands-on approach to exploring some of the key aspects in relation to early place value understanding. The importance of equipment will be explored as well as a range of activities to scaffold students place value development. Participants will also be encouraged to share place value activities that they have used effectively in their classroom programmes.
Repeated as H4

B5  Exploring Coaching for Effective Mathematics Instruction Using the e5
Workshop
Naomi Sordello - Grampians Region
Paula Shaw - Grampians Region
How might we use the e5 instructional model as a coaching tool for effective mathematics instruction? Join Naomi Sordello and Paula Shaw, Teaching and Learning Coaches from the Grampians Region, in exploring strategies to build the capacity of teachers to deliver effective mathematics using the e5 Framework.
Repeated as D5

B6  Teaching Mathematics at Stage Not Age
Lecture
Alan McSeveny - On Your Marks Mathematics
The session will present an effective method to allow teachers and parents to teach each child according to their stage even within the classroom setting. Alan McSeveny is the author of the Signpost Mathematics Texts and many others from Years P to 12. Alan will present a new online concept he has developed for teaching and learning mathematics called OYM Maths Builder. With full testing, consolidation and extension pages, as well as school whiteboard options this program will add a new dimension to your teaching of mathematics. (Commercial Presentation)
Repeated as H12

B7  Moving to Mastery with Mathletics
Lecture
Kate Williamson - 3P Learning/Mathletics
Mathletics is the leader in online maths education. 99.2% of students will achieve concept mastery... find out how. (Commercial Presentation)
Repeated as H14

B8  Ensuring Teacher Aides are Equipped to Confidently and Competently Assist Both the Classroom Teacher and Students
Workshop
Tracey Snape - University of Canterbury - Education Plus
This workshop will include many practical ideas, based on recent research findings that leaders of mathematics and teachers can share with teacher aides in Primary schools to assist them to meet the needs of learners. Small group and peer tutoring techniques will be a key component. Also emphasis will be on the use of various hands-on activities with easily attainable equipment.
Repeated as A7
B9  Mathematics Intervention in the Early Years
Workshop  
_Catherine Pearn - University of Melbourne_

Mathematics Intervention was established to cater for children ‘at risk’ of not succeeding with Year 1 mathematics. The development and results of clinical interviews used for testing will be discussed along with strategies used to assist children overcome common difficulties identified by the testing. The importance for classroom teachers to be able to identify each child’s strategies will be stressed as a starting point for mathematics teaching in the early years. The presentation will highlight strategies used in the intervention program that can be modified for classroom teachers to incorporate into their mathematics program.

_Repeated as A8_

B10  Place Value Activities and Making Links to Problem Solving
Workshop  
_Greg Butler - Camp Hill Primary School_
_Fiona Lindsay - Camp Hill Primary School_
_Lara Manning - Camp Hill Primary School_

Practical Place Value activities and games that will help achieve an understanding of how our number system works and make links to processes and strategies for effective problem solving. Includes sample place value units of work that build an understanding of place value, make connections to realistic problem solving and provide explicit teaching opportunities. Stuff you can take back and use in your classroom.

_Repeated as A9_

B11  Problem Solving and Algebraic Thinking
Workshop  
_Will Windsor - Griffith University_

Algebraic thinking is a crucial and fundamental element of mathematical thinking and reasoning. It initially involves recognising patterns and general mathematical relationships among numbers, objects and geometric shapes. This workshop will highlight how mathematical problems that encourage students to think algebraically may support a deeper knowledge and understanding of mathematics.

_Repeated as A11_

B12  Making Maths Marvellous with Manchester, Movement and Manipulatives
Workshop  
_Gabrielle West - Department of Employment, Education and Training_

Make your mathematics units marvellous for both the teacher and the students, by using a variety of everyday objects like circular tablecloths, tea towels, quilt covers, skateboards, paddle pop sticks, elastic, coloured paper and card, clothes line and pegs, and the 3D’s (dice, dominoes and a deck of cards) that will engage the learner and produce results! Many mathematics topics are covered in this active session which includes open and closed questioning and connections to other curriculum areas. A CD with all the resources is also provided.

_Repeated as H15_

B13  An Interactive Whiteboard for Under $200
Lecture  
_David Phillips - Tintern Schools_
_Lynette George - Tintern Schools_

We will show you how to make a portable interactive whiteboard using readily available components for less than 10% of the price of a standard fixed location IWB. Alternatively participants will have the opportunity to order a kit. (Commercial Presentation)

_Repeated as H17_

B14  D.I.Y. e Resources on Excel
Lecture  
_Peter Clerks - St Paul’s Anglican Grammar School_

Computers provide a powerful learning and teaching tool. Excel is particularly useful for the teaching of mathematics. In this session you will learn how you can create worksheets within Excel that can be geared for practically any level from Grade 1 to Year 12. You will be guided through the creation of a “madminute” worksheet which randomly generates 50 times table questions. The programming of this can then be further applied with your creativity.

*Note:* Bring a computer with Excel (2003 or Better) loaded on it.

_Repeated as F20_
B15  Using Maths Extension Materials in the Upper Primary/Junior Secondary School
Lecture  Years: 5 - 8
Ian Bull - Melbourne High School
According to education research, approximately 10% of our students can be classified as being gifted and talented and if another 15% can fit into a high achieving class then about a quarter of the students in our classes are in need of enrichment materials in the mathematics curriculum. These students need challenge above and beyond the normal mathematics curriculum – they need to be presented with materials and experiences to develop their higher order thinking skills. A range of materials that have been trialled in some primary and secondary schools will be presented. (Commercial Presentation)
Repeated as C21

B16  Datalogging Basics
Workshop  Years: 5 - 8
Sue Inness - TechXellent Training Solutions
What is it? How can I incorporate simple datalogging in my classroom to achieve learning outcomes in maths, science and ICT? This is a basic workshop for teachers that want easy basics applied in relevant, meaningful investigations. We’ll also incorporate some simple Excel formulas and graphs into datalogging. We’ll be using the LEGO NXT brick and the latest NXT V2 software with datalogging to make these investigations. I’ll supply all the computers, software and equipment for this session so just bring yourselves. (Commercial Presentation)
Not repeated

B17  Engaging Middle Years Students in Mathematics Using the MATHOMAT
Workshop  Years: 5 - 9
Ted Marks - Albion North Primary School
Steve Lewis - A.U.S.I.E. Maths Consultant
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)
Repeated as E22

B18  Hands-on Algebra Functions
Workshop  Years: 5 - 10
Ian Lowe - The Mathematical Association of Victoria
The understanding of algebra remains one of the biggest challenges for many students, yet it is the pathway to higher levels of mathematics. Ian will workshop a range of activities that generate interesting functions (linear, quadratic, cubic, exponential) that can improve both understanding of functions, algebraic notation and graphs. Not repeated

B19  Using Technology in the Mathematics Classroom
Workshop  Years: 5 - 10
Sharon London - HOTmaths
Are you grappling with ideas for your interactive whiteboard? Not sure about what to do in lessons where students all have laptops? This workshop will explore a range of online activities that support teachers in dealing with the introduction of technology into lessons. Interactive whiteboard (or normal whiteboard) resources demonstrated, range from cleverly designed drill questions through to ones that stimulate discussion and exploration in your classroom. Coupled with the blackline masters, students are led through working mathematically investigations. All resources are appropriate for laptop classrooms, with lesson content, interactive dictionary, learning activities, assessment activities, topic testing and tracking of student work. Resources are all from the HOTmaths website. All participants will receive a free one month account. (Commercial Presentation)
Not repeated

B20  School of Trivia: A Jammed Packed Frenzy of Maths, Pop Culture, Music, Film and Yes Maths!!!!
Lecture  Years: 6 - 10
Peter Curry - Quiz Meisters Trivia
This will be a commercial presentation of the product entitled ‘School of Trivia’. Depending on the allocated time, I plan to run an actual trivia competition, showcasing the interactive DVD and curriculum based maths trivia (mixed with pop culture). This will be a highly charged presentation that will involve everyone in the room. (Commercial Presentation)
Note: Please bring a pen and a book to rest your answer sheets on.
Repeated as H26
Exploration of Rich Concrete Task to Consolidate Mathematical Understanding
Workshop
Michelle Moses - Elisabeth Murdoch College

Using rich concrete tasks are important in mathematics because many students are not ready for abstract thinking at secondary school. We can still have good tasks in our classrooms which will facilitate students understanding and thinking. This will also make mathematics fun. Students need to explore, explain reason as well as reflect their mathematical understanding. This will ensure success in conducting rich tasks in our classroom. Scaffolding tasks will ensure that all students will reach the learning outcome set.

Teaching and Learning Mathematics in a Paperless World!
Computer Workshop
Kylie Taig - Carey Baptist Grammar School

Learn how to develop challenging, technologically rich Mathematics units that are easy to navigate and encourage students deeper thinking. Combine various resources to produce interactive units of work which allow students to do away with their heavy textbooks and save you time and money at the photocopier! Find out about how to use programs like Microsoft OneNote, You-tube, and Mathematica to create a multi-user environment that enables students to collaborate and share their opinions and ideas effectively. Investigate ways to make assessment fun and relevant for your students, while at the same time quick, easy and paperless for you. See students in action as they navigate their way in a paperless world and observe how they are engaged with their learning on a personal, social and intellectual level.

Note: Participants should have access to Microsoft One-note and You-tube (internet).
Not repeated

Air Rockets
Workshop
Denis Day - Glenvale School
Subra Muniandy - Glenvale School

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.

Mathematics - The Ugandan Way
Workshop
Sue Neale - Kyabram Community and Learning Centre

Sue is a qualified secondary maths teacher who is currently teaching maths to adults in a Victorian rural community centre. During 2009 she travelled to Uganda and worked in and around schools for 4 weeks. She witnessed some amazing maths teaching. Come along to this workshop and see how you can incorporate traditional Ugandan teaching into your daily maths routines. You and your students won’t be disappointed!

Row and Run Using the TI-Nspire Software
Workshop
Pauline Rocks - St Mark's Anglican Community School

This session takes an in-depth look at a typical example of optimization using the Teacher Software for the TI-Nspire. What begins as a simple activity in Year 9 reinforcing the Theorem of Pythagoras, becomes more sophisticated for later years when it is constructed and simulated by the software. This allows the collection of data points (rather than being individually calculated) which can then be graphed. The optimal solution can be obtained graphically and then using methods of both algebra and calculus, the function can be superimposed and the optimal solution obtained – all with the same piece of software.

Note: It would be an advantage to bring a TI-Nspire Calculator to the Session.

Hunted, Sourced & Quartered – Finding Quality IWB Maths Activities Without the Hassle
Workshop
Vebica Evans - Pearson Education Australia

Are you a beginner at using an IWB in your Maths classroom? Are you lacking the time to search for resources, interactives and flipcharts and really wish to be given something that you can use right now? This session will explore what is available online for your IWB and also the “Pearson-Heinemann Maths Zone LiveText for IWB”, a collection of interactives, games, quizzes and tools for the 7-10 mathematics classroom. (Commercial Presentation)

Repeated as F31
B27 Using an E-activity Created by the Casio ClassPad
Workshop
Kevin McMenamin - The Peninsula School
The in-built e-activity application on the ClassPad allows you to create pre-prepared notes and tasks ready for students to use. This workshop will give you the opportunity to play with this feature of the CAS technology. You will work through some already created tasks and also begin to create your own task using a selection of the other built-in applications (eg. Geometry, Spreadsheets, Sequences, Graph and Table).
Note: If you have your own ClassPad calculator you are encouraged to bring it along. Loan calculators will be available at this session.
Not repeated

B28 Real Numbers
Computer Workshop
David Leigh-Lancaster - Victorian Curriculum & Assessment Authority (VCAA)
The real numbers and related operations form an interesting mathematical structure, however most students and many teachers will have worked mainly with the rational real numbers, and the occasional irrational real number in measurement and function contexts. In this session we take a more in-depth look at real numbers and their representations and properties, using the CAS Mathematica as a tool to support these investigations.
Note: While familiarity with Mathematica is not assumed, participants should be comfortable working with mathematical software or similar in a windows based environment.
Repeated as G31

B29 Building Mathematics Courses in Moodle (Learning Management System)
Computer Workshop
Vanessa Rule - Jacaranda (John Wiley & Sons)
Chris Dunn - Viewbank College
This workshop will allow participants to create their own online Mathematics course using Moodle, a learning management system, by integrating eBooks. Moodle is a free and open source e-learning software platform. Moodle is designed to help educators create online courses with opportunities for rich interaction. Its open source license and modular design means that people can develop additional functionality.
Note: Participants may bring their own electronic resources on a USB stick or CD (ready to upload), however access to eBook mathematics resources will be provided.
Repeated as A33

B30 Using a Motion Sensor to Create Real Time Distance-Time Graphs
Workshop
Peter Mein - Methodist Ladies’ College
A motion sensor is used to gather data so that students see graphs being made in real time. The students themselves move in front of the sensor to create the data and this level of kinaesthetic engagement enriches the learning experience. The fact that students get instantaneous feedback is very powerful. Students can see the effects on graphs made by varying the rate of change and direction. This fun and memorable activity is very useful to help show the link between real rectilinear motion and associated graphs.
Not repeated

B31 Digital Interactive Maths Database (DIM)
Computer Workshop
Dubravka Maksimovic - Sunbury College
Sandra Maksimovic - Blue Tongue Entertainment Pty Ltd
I created two Digital Interactive Maths databases IDIM) for use by students at a school during computer classes or from home computers. MAV has now made DIM available to all maths teachers. The internet database links the student to selected high quality applets available for free on the internet. The applets are organised by topic, year level, difficulty level and by dimension. Teachers may combine them into digital lesson plans tailoring to their students’ needs. Although applets are listed as Year 9 or 10, many teachers will see their potential at other levels. There are instructions for student use and these may be modified on your computer for your own use. The CD database uses the three commercial CDs in use at Sunbury College. The links therefore require your school to be using one of those series of texts. It is organised in the same way as the first database.
Note: Teachers only need to bring their USB to record access to databases and some examples of digital lesson plans.
Repeated as C35
Mathstrack is now developing a range of resources for selected topics (or subtopics) in Year 9 and 10. Some of these include: fill in graded worksheets, interactive summaries, concept development and self correcting review tests for teachers to assess student understanding. These resources can be used for topic development, consolidation and to rectify student misconceptions. (Commercial Presentation)

Not repeated

B33  Marty’s Mathematical Horror Show
Lecture  Years: 9 - 12
Marty Ross
This talk will play Mr Hyde to our keynote Dr Jekyll. Much of what is presented as true and good mathematics is in fact nonsense. It is not always simply a matter of making mistakes; such nonsense often demonstrates a fundamental lack of understanding of mathematics and of a mathematical way of thinking. In this talk, we’ll present and ponder a gallery of mathematical horrors. We’ll consider: movie mistakes and media mayhem; religious quackery; Stupid CAS Tricks; Numeracy nuttiness and National Curriculum Cluelessness; textbook twaddle; and whatever else time permits. We’ll consider what the prevalence of such nonsense implies for the teaching and the culture of mathematics. And, when not doing that, we’ll indulge in cheap laughs.

Not repeated

B34  Univariate Data Analysis on the TI-Nspire CAS
Workshop  Years: 9 - 12
Russell Brown - Educational Consultant
Maree Timms - Galen Catholic College
This hands-on session will look at both categorical (dot charts, bar charts and pie charts) and numerical (dot plots, histograms, single and comparative boxplots) data sets suitable for middle school, General Mathematics and Further Mathematics students. Use individual data values and frequency tables to complete basic statistical analyses and plotting from data obtained from the ABS CensusAtSchools database.

Note: Loan TI-Nspire CAS calculators will be available or bring your own.
Repeated as A35

B35  Webcasting and Virtual Classrooms
Lecture  Years: 9 - 12
Adrian Camm - McGuire College
In the global, networked environments of the 21st century, student learning is expanding beyond the four classroom walls. It is with these online learning environments that teachers can surmount the barriers of time and distance to communicate, reflect, and collaborate with colleagues and students. This session will focus on the tools and basic functionality of webcasting and virtual classrooms. Come and learn how these technologies can enhance student learning and promote mastery of 21st century skills.

Not repeated

B36  Increasing Student Engagement in the Senior Years
Lecture  Years: 9 - 12
Karen Crothers - Bendigo Senior Secondary College
Leah Whiffin - Bendigo Senior Secondary College
Students in the senior years who have found Maths challenging often lack confidence and can be reluctant to fully participate in Maths classes. This session will focus on looking at a range of activities that are designed to increase student engagement in VCAL Numeracy and VCE Foundation Maths. Participants will have the opportunity to work through class activities, discuss strategies that they have found to be successful and participate in some games that can be adapted for more mature learners.

Repeated as C36

B37  Towards a 1-to-4 Approach to Mentoring Mathematics Learners in South African Schools
Lecture  Years: 10 - 12
Willy Mwakapenda - Tshwane University of Technology, South Africa
Joseph Dhlamini - Tshwane University of Technology, South Africa
This presentation focuses on a partnership that a South African University (TUT) has with a high school that involves working with the school to mentor Grade 10 learners and develop their maths learning through group strategies.
Repeated as A36
B38  TI-Nspire with General Mathematics  
Workshop  
   John Llewelyn - Bendigo Senior Secondary College  
   Stuart Payne - Bendigo Senior Secondary College  

A practical workshop to assist teachers who might be considering a similar venture. Step by step assistance in using TI-Nspire to solve problems. Topics to be considered may include linear graphs, algebra, statistics, coordinate geometry, and vectors. There will be discussion of how calculators were used in this context.  
Note: Bring your own TI-Nspire calculator if you wish. Otherwise they will be provided.  
Repeated as A37

B39  Designing the Year 11 General Maths Advanced Course in Order to Prepare Students to Year 12 Specialist Maths  
Workshop  
   Nalini Ekanayake - Sacred Heart Girls’ College  

Teaching General Maths Advance course to Year 11 can be very challenging to teachers who haven’t had much experience in Specialist Maths. In this session a teacher who has had more than 15 years of experience with VCE maths will offer teachers who are new to the subject ideas on course outline with suggested time allocations for each different topic, different ways of explaining some hard concepts, and also provide the participants sample Assessment Tasks.  
Repeated as C39

B40  Specialist Mathematics 2009 and Beyond  
Lecture  
   Allason McNamara - Mount Scopus Memorial College  
   Philip Swedosh - St Leonard’s College  
   Dean Lamson - Ballarat & Clarendon College  

Philip and Allason are members of the Specialist Mathematics Setting and Marking Panels. They will outline the common errors which were made on recent examination papers with a view towards the 2010 examinations. Statistics for the 2009 examinations will not be released.  
Not repeated

B41  How to Prepare Analysis/Modelling Tasks for VCE Mathematical Methods - A Practical Session  
Lecture  
   Peter Hadji - Sacred Heart Girls’ College  

This session is for the teachers who are new to teaching VCE Maths Methods or Maths Methods CAS. Participants will learn how to create their own Analysis/Modelling tasks using useful software such as Equation Editor, Fx Draw and Smart Board software. This session will be useful for teachers who would like to connect skills learned in Mathematical Methods 1, 2, 3 & 4 to extended response questions in both familiar and unfamiliar settings.  
Repeated as C40

B42  Counter-Examples in Probability and Statistics  
Lecture  
   John Kermond - Haileybury College Senior Campus  

A counter-example is an example that is used to disprove a statement or conjecture. In this session several incorrect beliefs commonly held by students (and perhaps some teachers) in probability and statistics are presented. Simple counter-examples that disprove these beliefs are provided and discussed in detail. Ideas suitable for use in Unit 4 Mathematical Methods Analysis Task 2 will be specifically highlighted.  
Repeated as F45

B43  Teaching Specialist Mathematics with CAS Technology  
Lecture  
   Bozenna Graham - Wesley College  

Sample classroom activities will be presented how to introduce new concepts and how to enhance student's understanding using CAS technology (TI-89 Titanium and TI-Nspire). Topics will include parametric equations, complex numbers, implicit differentiation, slope fields and differential equations, vector calculus.  
Note: Please bring your CAS calculator.  
Not repeated
Anita Chin - Origo Education

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. Number sense is of prime importance for understanding number relationships and algebraic techniques, however, many students use inefficient strategies for computation. This address will examine the purposeful use of concrete, pictorial, and symbolic representations to fill the conceptual ‘holes’ of struggling students whilst creating an inclusive learning environment where the curriculum is accessible to all students. Key models for building connections between number and algebra will be highlighted. Practical examples that can be used in the classroom immediately will include ideas for building robust knowledge of adaptable and transferable concepts as well as the making of connections between related concepts.

Anita Chin M.Ed, worked for the NSW Department of Education and Training for 13 years, firstly as a secondary mathematics teacher and then as a mathematics consultant K-8 in Sydney. After working as a consultant on the award-winning NSW GO Maths core program, she commenced with ORIGO Education in 2007 as a National Mathematics Consultant. Anita now inspires teachers across Australia and abroad with focused professional development workshops and in-class demonstration lessons that shows her passion for practical, hands-on activities that engage learners of all ages. This has stemmed from her recent research into the use of concrete materials to teach Number and Algebra in the middle years.

Anthony Harradine - Prince Alfred College

How many sheets of toilet paper are actually on a 210 sheet roll? You might be surprised! Packaging processes provide an amazingly rich context through which many of the fundamental ideas in the Statistics curriculum can be genuinely experienced and learned. Authentic contexts, authentic data, authentic learning. Anthony will share some of his work of the last two years, done in conjunction with Cliff Konold, that enables students to make sense of data rather than solely making calculations with them.

Anthony Harradine (Director, Noel Baker Centre for School Mathematics, Prince Alfred College). In 1979, Anthony’s father encouraged him to take up a career that would be needed in both flourishing and difficult times. Frank suggested everyone had to eat, so being a butcher would be good. And, there would always be children around, so school teaching was a good one too. Result? From four children, two butchers and two school teachers. Anthony has had the odd classroom experience that left him wishing he were a butcher! Anthony’s work has been in the fields of algebra and data analysis. He has spent time pondering and testing ideas concerning: animation (via interactive geometry) as a natural pathway to modelling with symbols, how a computer algebra system (CAS) can both help and hinder symbolic skill development and how Tinkerplots just might be the best hope we have for a statistically literate society. His most interesting professional moment so far was his prompting of the construction of a 10,000 cup cup-snake at the NCSM 09 conference in Washington DC. It was very long!

Allason McNamara - Mount Scopus Memorial College

A number of CAS activities, which have been developed whilst teaching Mathematical Methods CAS and Further Mathematics, will be demonstrated on the TI-Nspire. Such activities will include using finite differences to find the equations of polynomial functions, playing with matrices and their determinants and exploring calculus. Did you know that? Participants will be sent an electronic copy of all the activities.

Allason McNamara is the Head of Mathematics at Mount Scopus Memorial College, a TI-nspire CAS school. She first started using CAS (Mathematica) at Methodist Ladies’ College and took the first laptop class through their VCE examinations. Allason is the Chief Assessor for Mathematical Methods CAS and is a member of the Specialist Mathematics writing panel. She is a VCE lecturer and current author of several VCE Mathematics textbook, including the CAS Analysis Supplement which she co-authored with Sue Garner and Frank Moya. In her spare time, she helps to organise the State-wide Mathematics Games Days for The MAV. Allason is married with three children and enjoys taking them to the soccer and basketball on weekends.
C4  Learning About Number - Natural and Complex for Children  
Lecture  
Rosemary Irons - Queensland University of Technology  
Years: Prep - 1  
Learning about number is natural for children as they work with resources, draw pictures and recognise symbols in a mathematics rich environment. The learning environment includes a range of number representations such as different arrangements of quantity, five and ten frame organisers and number tracks. These models help young children develop a strong conceptual understanding of number that enables them to represent number in meaningful ways and thus enjoy working with numbers.  
Repeated as A4

C5  Getting the Most Out of Professional Development: Teachers Taking Control  
Lecture  
Anne Scott - Australian Catholic University  
Philip Clarkson - Australian Catholic University  
Andrea McDonough - Australian Catholic University  
Years: Prep - 6  
Participants of the Contemporary Teaching and Learning in Mathematics (CTLM) project operating in eleven Catholic primary schools across Melbourne in 2008 share stories of and insights from primary classroom teachers about a process they used to change aspects of their teaching of mathematics. Some changes in practice involved: refined questioning skills, planning and use of assessments to promote classroom discourse and reflective thinking with their students. Come along and hear what they did. You might like to try something similar in your class.  
Repeated as A6

C6  Articul8 Maths  
Lecture  
Donna Ludvigsen - Grampians Region Department of Education & Early Childhood Development  
Melinda Williams - Mount Pleasant Primary School  
Years: Prep - 6  
Donna Ludvigsen (Grampians DEECD) and Melinda Williams (Teaching & Learning Coach) believe in the importance of TALKING in maths lessons. In this workshop they will explore a range of talk: both teacher talk and student talk, and link it to the structure of the lesson and e5. Establishing learning intentions, focussed anecdotal notes, strategic questioning, articulation of key ideas, share time strategies, cooperative and collaborative groups will all be discussed. This workshop will provide teachers with a wealth of strategies to be used in their maths classroom.  
Repeated as D6

C7  Nine & Over: Adventures in Place Value  
Workshop  
Douglas Williams - Black Douglas Professional Education Services  
Years: Prep - 6  
Place Value is 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  Empowering Students to Make their Mathematical Thinking Visible  
Lecture  
Lorraine Kennedy - WMR, Department of Education & Early Childhood Development  
Years: Prep - 8  
Making explicit links between literacy and numeracy empowers all students to develop strategies and skills to enable them to enter into problem solving as successful mathematicians. Gaining an insight into student’s mathematical thinking through multiple representations while problem solving is an invaluable assessment of student conceptual understandings and knowledge that directly relates to teachers making more accurate judgements about planning the next steps. This practical session will involve discussion based on examples of student’s mathematical thinking through multiple representations while problem solving. This will enable participants to better understand how to interpret evidence of student thinking. Participants will leave with practical classroom ideas for assessment ‘for’, ‘of’ and ‘as’ learning and strategies that enable students to become successful mathematicians.  
Repeated as H11

C9  Mathletics User Group for Experienced Users  
Computer Workshop  
Brendan Colley - 3P Learning/Mathletics  
Years: Prep - 12  
This session is for teachers with experience using Mathletics to hear news on the latest developments, share experiences and ideas, understand how to help students improve using the resource, learn how best to differentiate and create course material. (Commercial Presentation)  
Repeated as E9
C10  Hands-on Computer Workshop with Kinetic Education

Computer Workshop

Mary Sanghvi - Kinetic Education
Jonathan Sanghvi - Kinetic Education

Kinetic Education “Maths Wiz” is a structured program, supporting VELS and VCE Methods, Further and General Maths. It has a very strong teaching component, and is an engaging way of assisting students who are falling behind or striving for great things. There are more than 1,000 lessons and activities, each accompanied by tests and solutions. (Commercial presentation by the developers).

Repeated as D12

C11  Mathematics in Art and Architecture

Lecture

Jeanne Carroll - Victoria University

In this session the role of Mathematics in Art and Architecture throughout history will be examined.

Not repeated

C12  Who Benefits in Peer Tutoring - The Tutor, The Tutee or The Teacher?

Workshop

Carol Butel - University of Canterbury - Education Plus

This workshop outlines the benefits for all students when a peer-tutoring programme is implemented as part of a quality numeracy programme. The programme is based on the work of Bob Wright and the research of Jo Boaler. Topics covered in the workshop include: how the programme was set up, the materials created and their subsequent refinements, and reflections from both the students (Year 3) and the teacher on the outcomes. The workshop will also look at the broader impact of the programme on the social dynamics of the classroom. Participants will have an opportunity to trial the materials in the workshop.

Repeated as A10

C13  Handling Fractions

Workshop

Peggy Ashton - La Trobe University
Jenny Vincent - La Trobe University

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 D15

C14  Place Value. Why Do Some Students Struggle with Place Value?

Workshop

Deborah Gibbs - Massey University College of Education

This workshop will explore the difficulties that students have with place value and the impact this has on their number work. This is an interactive workshop where participants will explore these difficulties through hands-on activities.

Repeated as A13

C15  Assisting Students to Learn and Recall Basic Number Facts

Workshop

Catherine Pearn - University of Melbourne

Research has shown that successful mathematics students use different types of strategies from those struggling with mathematics. Year 4 students were tested using the One Minute Tests of Basic Number Facts (Westwood, 2000) and a paper and pencil Number Screening Test developed by the author and colleagues. Observation of the students during the assessment procedures highlighted the vast difference in the students’ speed and accuracy when recalling basic facts and the types of strategies they used when solving mathematical tasks. This presentation will look at some of the activities teachers can use to assist students struggling to remember number facts.

Not repeated

C16  Action Research in Maths - Whole School Change

Workshop

John Davidson - Brunswick East Primary School
Jill Howell - Brunswick East Primary School
Tess Haycox - Brunswick East Primary School

Brunswick East Primary School has embarked on an Action Research Project to develop the Learning and Teaching of Mathematics across the whole school. Key factors for success have been to establish learning communities, multiage classes, intense professional development, and a reflective approach to teaching.
C17 Developing a Unit of Work on Structure Using an Intensive Coaching Model
Lecture  
*Peter Sanders - La Trobe University*
*Christine Powers - Timbarra Primary School*

The Berwick South Cluster Numeracy Team are developing exemplar tasks in Structure, trialled using Lesson Study. We are now developing these tasks into units of work. This process has involved an Intensive Coaching Model, whereby teachers can observe tasks and then put them into practice in their own classrooms. This presentation will detail the development of this model in Year 5/6 grades in one of the cluster primary schools and will include examples of the structure lessons.

C18 Using Maths to Test Our Ideas
Workshop  
*Daniel Avano - Scienceworks*
*Bronwyn Quint - Scienceworks*

In this session, participants will be introduced to a practical activity that investigates how the body responds to exercise. Predictions of how and why the body responds to exercise will be investigated further through measurement and graphical representation.

C19 Lesson Study
Lecture  
*Kathryn Palmer - WMR Regional Coach, Melton Network*
*Caroline Mazunkiewicz - Kurunjang Secondary College*

Using Japanese Lesson study as a way for school based coaches or learning teams to improve the quality of the learning experiences they provide to their students. We have used it to significantly improve teaching and learning in the classroom as well as providing support for differentiating the curriculum. In this session we will provide an overview of the journey we have undertaken as regional numeracy coaches in both secondary and primary schools.

C20 Essential Excel
Workshop  
*Sue Inness - TechXellent Training Solutions*

It’s often assumed that teachers have a level of competence with Excel. For teachers who have moved up into teaching later year levels or have missed out on vital PD this isn’t always so. Excel is an amazing tool for seeing patterns in numbers, speeding up calculations and creating customized graphs, etc. This program is not a replacement for understanding mathematical operations but is fantastic extension and is extremely valuable for students who find maths challenging. This workshop will take participants through some of the basics of using Excel with formatting, formulas and creating graphs. Bring your own laptop computer or use my laptops.

C21 Using Maths Extension Materials in the Upper Primary/Junior Secondary School
Lecture  
*Ian Bull - Melbourne High School*

According to education research, approximately 10% of our students can be classified as being gifted and talented and if another 15% can fit into a high achieving class then about a quarter of the students in our classes are in need of enrichment materials in the mathematics curriculum. These students need challenge above and beyond the normal mathematics curriculum – they need to be presented with materials and experiences to develop their higher order thinking skills. A range of materials that have been trialled in some primary and secondary schools will be presented. (Commercial Presentation)

C22 Reciprocal Teaching in Maths
Lecture  
*Yvonne Reilly - Sunshine College*
*Jodie Parsons - Sunshine College*
*Liz Bortolot - Sunshine College*

Reciprocal Teaching in Maths, a learning strategy that builds problem solving skills and improves mathematical literacy for students.
C23  Real Classroom Feedback - Activexpressions
Workshop  Years: 5 - 9
  Lauren O’Grady - Edsoft Pty Ltd
How do you engage the student who does not want to speak up? How do you gain instant feedback on your teaching
and your students learning? With the use of Promethean’s new learner response systems Activexpression. In this
session discover how learner response systems can transform your teaching, how? By having a go yourself!
Not repeated

C24  Maths Is An Option. How Do We Make Students Opt For It?
Lecture  Years: 5 - 10
  James Somerville-McAlester - Questacon - The National Science and Technology Centre
Teaching maths is no easy task. Maths is a beautiful game that can be played with, but it’s also a powerful tool
for doing serious tasks (kind of like a hammer, only more...heavy). How do we balance the crucial elements of
exploring fancy ideas, unexpected applications of maths, and learning things like times tables? Come and explore
the benefits of using maths puzzles and guiding students on how to make their own puzzles. See why we introduce
some of the more abstract parts of maths. Get some resources to help start you do similar things in your classroom
next week.
Repeated as H24

C25  Hands-on Ratio and Proportion
Workshop  Years: 5 - 10
  Ian Lowe - The Mathematical Association of Victoria
One of the most useful mathematical skills in everyday life, sciences and trades is that of proportion. Much is known
about how students learn this topic, and we know it is much more difficult to understand than just to memorise a
simple formula. Ian will present a set of hands-on activities to help learners understand the concepts and their
applications.
Not repeated

C26  Teaching Algebra to Lower Achieving Mathematics Students
Lecture  Years: 5 - 10
  Tin Lam Toh - National Institute of Education, Nanyang Technological University
It is generally recognised that algebra is difficult for most students, especially the lower achieving students. In this
presentation, strategies of engaging students in learning algebra in the Singapore classrooms are presented.
Repeated as F26

C27  Laying It All Out
Workshop  Years: 5 - 10
  Allan Turton - Origo Education
Sure, everyone can draw a net for a cube. But can you make a net for a polycube? Creating nets requires relatively
simple technical skills but quite complex reasoning and visualisation skills. Its place in all Australian curricula
highlights its importance as a topic, but details on how to successfully make nets are “sketchy”. Come along to this
hands-on session to explore the basics and beyond of making nets.
Not repeated

C28  Tinkering With Real Data
Computer Workshop  Years: 5 - 10
  Andrew Stewart - Presbyterian Ladies’ College
  Rachel Buczuhazy - Australian Bureau of Statistics
Students love using data relevant to themselves and CensusAtSchool provides that source of data. Using the real
data freely available from the CensusAtSchool project, this workshop will show how software such as Excel® or
Tinkerplots® can provide a springboard for rich explorations. The workshop will provide you with some take-home
examples that will enable you to get started using CensusAtSchool data with your students. If you would prefer to
set up and use your own data – to give your students ownership of what is happening – we can provide advice on
this process as well. (Commercial Presentation)
Repeated as D22

C29  i-maths in the Middle School
Computer Workshop  Years: 7 - 10
  Paul Nugent - Mentone Grammar School
  Jo Bradley - Mentone Grammar School
Looking at how students use different thinking routines, reflect and summarise their work using technology such as
ipods. Obstacles are presented within a framework which encourages students to think mathematically. The class
framework involves the use of whole class tuition, independent groups, guided groups and explicit whiteboard
clinics. This suggested structure permits a range of differentiation in a Middle Years classroom. The structure also encourages and supports the use of thinking routines, active reflection and the development of distinctive features from research conducted in the use of these routines. Time to engage with questions which are purposeful and develop authentic learning are integral to the process overall. It is an aim that student participation in this way will facilitate greater individual acceptance of responsibility for their learning.

Repeated as D27

C30  Web 2 and Mathematics
Computer Workshop
Kristy Graham - Distance Education Centre Victoria

In this session teachers will see the use of using Blogs, IM, Vodcasting and Wiki’s in mathematics. Teachers will explore different technologies and how these can be incorporated in the mathematics classroom. A set of usable resources will be provided.

Note: Please bring a laptop if you have your own broadband wifi.

Repeated as H31

C31  Bungee Jumping and the Leaning Tower of Poser
Workshop
Denis Day - Glenvale School
Subra Muniandy - Glenvale School

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 D26

C32  Arithmetika-Cheetah: e-learning and e-assessment Workshop!
Computer Workshop
Tony Allan - Daramalan College Canberra

Formal Electronic Assessment has now come of age. Arithmetika’s Assessment Manager gives schools their first real opportunity to replace a significant proportion of traditional paper-based assessment with e-assessment. Will save you hours of marking! You can also review Arithmetika’s Mathematics Curriculum Packs, which allow schools to deliver the opportunity to practice and revise almost anything on the high-school curriculum, with instant feedback for the students and countless hours of marking done for you. This is a hands-on workshop. (Commercial Presentation)

Repeated as G28

C33  Effective Secondary Teaching About the Mathematics of Losing on Chance Gambling
Lecture
Donald Smith - Sunshine House

Gambling awareness is important, but teaching it has pitfalls. Together we discuss problematic teaching, and appropriate teaching elements, considering, Use of real gambling games, How likelihoods differ from payment odds, How game structure sets expected rate of loss, and Ensuring the key lessons are learned, rather than the fun of gambling. Effective teaching at a junior secondary level about the mathematics of gambling, can give understanding of 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.

Not repeated

C34  Learning Activities for Middle School Classes Using CAS Technology
Workshop
Jennifer Curtis - St Mark’s Anglican Community School

This hands-on session is designed to provide some ideas for using CAS calculators in the middle school. Through the use of the TI-Nspire CAS software, participants will be able to use CAS technology to work on a number of activities suitable for students in Years 8 to 10.

Note: Calculators will be supplied.

Repeated as F35

C35  Digital Interactive Maths Database (DIM)
Computer Workshop
Dubravka Maksimovic - Sunbury College
Sandra Maksimovic - Blue Tongue Entertainment Pty Ltd

I created two Digital Interactive Maths databases (DIM) for use by students at a school during computer classes or from home computers. MAV has now made DIM available to all maths teachers. The internet database links the student to selected high quality applets available for free on the internet. The applets are organised by topic,
year level, difficulty level and by dimension. Teachers may combine them into digital lesson plans tailoring to their students’ needs. Although applets are listed as Year 9 or 10, many teachers will see their potential at other levels. There are instructions for student use and these may be modified on your computer for your own use. The CD database uses the three commercial CDs in use at Sunbury College. The links therefore require your school to be using one of those series of texts. It is organised in the same way as the first database.

**Note:** Teachers only need to bring their USB to record access to databases and some examples of digital lesson plans.

Repeated as B31

C36 Increasing Student Engagement in the Senior Years
Lecture

Karen Crothers - Bendigo Senior Secondary College
Leah Whiffin - Bendigo Senior Secondary College

Students in the senior years who have found Maths challenging often lack confidence and can be reluctant to fully participate in Maths classes. This session will focus on looking at a range of activities that are designed to increase student engagement in VCAL Numeracy and VCE Foundation Maths. Participants will have the opportunity to work through class activities, discuss strategies that they have found to be successful and participate in some games that can be adapted for more mature learners.

Repeated as B36

C37 Indices on the TI-Nspire CAS
Workshop

Russell Brown - Educational Consultant
Maree Timms - Galen Catholic College

A hands-on session that will address different approaches to teaching indices on the TI-Nspire CAS handheld. Use the CAS functionality and spreadsheet to show the specific and general cases of indicial expressions and equations, explore the families of exponential and logarithmic functions (including transformations) using a variety of methods, plus more!

**Note:** Loan TI-Nspire CAS handheld will be available or bring your own.

Repeated as D37

C38 Promoting Functional Thought in Students
Workshop

Amanda Legg - Lilydale High School
Cathy Drury - Lilydale High School

During this session, I will show how the process of defining functions with TI-Nspire calculator can be used to explore some traditional problems in coordinate geometry. Such activities promote greater student understanding of functions and graphs, and helps prepare students for VCE where CAS experience is necessary and expected. Participants will receive a copy of worksheets used. (Commercial Presentation)

**Note:** Please bring a TI-Nspire calculator if you have one. Some will be available at the session.

Repeated as E37

C39 Designing the Year 11 General Maths Advanced Course in Order to Prepare Students to Year 12 Specialist Maths
Workshop

Nalini Ekanayake - Sacred Heart Girls’ College

Teaching General Maths Advance course to Year 11 can be very challenging to teachers who haven’t had much experience in Specialist Maths. In this session a teacher who has had more than 15 years of experience with VCE maths will offer teachers who are new to the subject ideas on course outline with suggested time allocations for each different topic, different ways of explaining some hard concepts, and also provide the participants sample Assessment Tasks.

Repeated as B39

C40 How to Prepare Analysis/Modelling Tasks for VCE Mathematical Methods
Lecture

Peter Hadji - Sacred Heart Girls’ College

This session is for the teachers who are new to teaching VCE Maths Methods or Maths Methods CAS. Participants will learn how to create their own Analysis/Modelling tasks using useful software such as Equation Editor, Fx Draw and Smart Board software. This session will be useful for teachers who would like to connect skills learned in Mathematical Methods 1, 2, 3 & 4 to extended response questions in both familiar and unfamiliar settings.

Repeated as B41
C41  Moving on with the Casio ClassPad in Further Maths

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

This workshop will look at how to save files and create eActivities to enhance learning in Further Maths. It will also demonstrate some of the more complex capabilities of the calculator that can be useful to the Further Maths student.

Note: Please bring a Casio ClassPad calculator to the session (a limited number will be available at the session).

Not repeated

C42  The Roller Coaster Application Task Review

Lecture
Michael Cody - Camberwell Grammar School

In 2008 I talked about the plan for our Application Task in 2009. This session is about the final format - and the success or otherwise of the task that spanned 4 weeks of school.

Repeated as D42

C43  An Initiative to Assist Student Transition to, and Outcomes in, University Mathematics

Lecture
Narwin Perkal - La Trobe University

With the long break between the end of VCE and commencing studies at university, the mathematical skills of new first year university students are often quite ’rusty’. This presentation is to inform attendees of a new transition initiative at LaTrobe University aimed at helping students hone their secondary mathematics skills and improve learning outcomes. This program was developed in conjunction with a Pearson Education interactive website under a memorandum of understanding with LaTrobe University.

Repeated as H46

SESSION C-D: 2:00pm - 4:15pm Thursday 3rd December (Extended Session)

C-D1  Mathematics (Numeracy) Interview and VELS, Progression Points and the Mathematics Continuum - Of Primary importance!

Workshop
Pamela Hammond - ROPA Consultancy

Many Primary teachers have been using the Mathematics (Numeracy) Interview for some years. Is it still relevant? Will it remain relevant in the future? How does it link to VELS and Progression Points? How do tasks connect to the on-line Mathematics Continuum? This workshop will show these links and how the interview and on-line resources can assist planning, and explore activities to move students forward. It is advisable that participants know, and preferably have used, this Interview.

Not repeated

C-D2  “Now I See”: A Visual Way of Teaching for Understanding

Lecture
Jan Cavanagh - Making Sense of Maths

Many students learn best from active participation and forming visual pictures in their minds. In this workshop, fractions, decimals and percentages on a number line, metric measurement, scale, area and perimeter invite mental images. We must value the visual learners.

Not repeated

C-D3  Online Resources For Maths

Computer Workshop
Hang Nguyen - Koonung Secondary College

Teachers will be shown a wide range of free resources and programs that are available online; including maths activities to printable worksheets to downloading a video from YouTube.

Repeated as A-B6

C-D4  Using ‘Algebra Blocks’ to Teach Integers, Expansion and Factorisation

Workshop
Michael O’Reilly - Mill Park Secondary College
Norrian Rundle - Epping Secondary College

This double session is an introduction to ‘Algebra Blocks’. ‘Algebra Blocks’ are a hands-on teaching aid used to introduce and teach Middle Years students directed numbers and expansion and factorisation of algebraic terms.
The focus will be on how to introduce and teach algebraic expansion and factorisation using this successful hands-on teaching aid. This will include both linear and quadratic expressions. Detailed notes, including many examples, will be provided. Teaching strategies will be explained throughout the session. We will also provide participants with the templates to cheaply make their own class sets of ‘algebra blocks’.

**Note:** Participants will gain the most benefit by attending the double session. We will be developing the ideas firstly with integers, and then move on to algebraic expansion and then factorisation. The ideas of using arrays and the algebra blocks build on the initial work with integers.

Not repeated

**C-D5** CAS-Active Approaches to Years 9-10 Mathematics Workshop

*David Tynan - Aquinas College*
*Peter Flynn - University of Melbourne*

In this workshop, participants will examine some CAS-active tasks suitable for Years 9-10 mathematics. The emphasis will be on reflective use of such a tool across a range of middle school mathematics topics. As we will discuss, CAS combined with sound teaching approaches and well-designed tasks can enhance student algebraic understanding and skills.

**Note:** Please bring a CAS calculator to the workshop.

Repeated as A-B8

**C-D6** Bezier Curves: Integrating Number, Geometry and Algebra Workshop

*Stephen Arnold - Compass Learning Technologies*

Most of the curves you see on a computer screen or printed page - everything from text fonts to animations - are generated mathematically using Bezier Curves. This topic offers wonderful opportunities for integration across the secondary years, from string art to parametric equations, from recursion to conics, where the geometry and algebra work together to support student understanding.

**Note:** Please bring a laptop along, preferably with TI-Nspire software installed. Trial copies will be available for installation prior to the presentation from the TI stand. TI-Nspire handhelds will be available at the presentation, but a laptop is preferable for this activity.

Repeated as F-G10

**C-D7** A New Approach To The Conics Lecture

*Hussein Tahir*

In this seminar we look at a new approach for the teaching of the conics, and demonstrate a new method in which conics are used as tools in problem solving. This is a follow up of the seminar run last year. Although some of the illustrations given last year will be repeated, the focus will be on the Central Conics. The strategies and methods discussed are also applicable to the Parabola. Technology is an integral part of this approach and Dynamic Mathematics programs, algebraic and graphics calculators can be used extensively.

Repeated as F-G11

**C-D8** Where am I on the CAS Continuum? Lecture

*Peter Fox - Elizabeh Murdoch College*
*Frank Moya - Frankston High School*

Participants in this session will work through a selection of activities that range from procedural through to investigative. The procedural activities use technology to reinforce traditional mathematical skills. Investigative activities encourage higher order thinking skills to reinforce conceptual development. The activities provided in this session have been developed by Peter Fox and Frank Moya through Teacher Professional Leave (30 days) where the activities have been tried and tested in classrooms consisting of students and teachers with a range of CAS experience.

Repeated as F-G13

**C-D9** Creating Learning Objects Workshop

*Neale Woods - Distance Education Centre Victoria*

Staff at the Distance Education Centre Victoria (DECV) have created a variety of learning objects for use in their mathematics courses. Logger Pro, TI-Nspire CAS software and Camtasia were used to create computer animations to complement the courses. This session is a presentation, not a hands-on workshop. However, participants will have the opportunity to create learning objects as part of the presentation.

Not repeated
C-D10 Statistics Workshop for the TI-Nspire Handheld

Workshop

Peter Jones - Swinburne University

This session complements the presentation ‘Statistics and the TI-Nspire: an overview’. In this workshop, participants will gain hands-on experience using the TI-Nspire handheld to conduct univariate data analysis, investigate relationships and perform regression analysis, including the use of data transformation.

Revised as F-G14

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

DK1 Challenging Children to Think: Teacher Behaviours That Prompt Children to Probe Their Mathematical Understanding

Keynote

Jill Cheeseman - Monash University

This session reports an investigation of teacher behaviours that stimulate individual children’s mathematical thinking and meaning-making through one-to-one interactions in the classroom. Findings will be presented under five main headings:

◊ Listening behaviours;
◊ Behaviours that required sustained student thinking;
◊ Questioning behaviours;
◊ Mathematical pedagogical behaviours; and
◊ Behaviours building social and emotional climate.

Jill Cheeseman comes from a background of primary teaching. Her teaching experience now ranges from the early years of school to tertiary and adult education. She worked with Prep to Year 2 children, their teachers and fellow mathematics educators in the Early Numeracy Research Project team. Since Jill has worked with primary teachers, principals across Victoria. Jill’s research interests centre on children’s acquisition of mathematical concepts and leadership in mathematics education. Professional development has always been one of her deep interests. This has been through lecturing pre-service and postgraduate education students and working as a consultant and mentor to in-service teachers.

DK2 CAS Opportunities in Levels Other Than the VCE

Keynote

Kevin McMenamin - The Peninsula School

CAS technology is mandatory in most VCE levels of Mathematics, but what should we be doing with the middle and junior years? This presentation takes a closer look at how CAS thinking can be integrated into activities and assessment tasks at these levels and the benefits of developing these opportunities at this time. Some reference will be made to the Casio ClassPad, but the information would be generic to any classroom.

Kevin McMenamin is an experienced mathematics specialist who is innovative in his use of technology in the classroom. For more than 10 years, Kevin has delivered revision lectures to VCE students across Victoria, is a regular presenter at the annual Mathematical Association of Victoria conference and has authored electronic materials related specifically to Mathematics. His liking for technology has extended to the uses of CAS within the classroom and he has presented many PD sessions within school related to this very topic.

DK3 Ten Mathematical Gems

Keynote

Marty Ross

This will be our Dr Jekyll talk. We’ll present and discuss ten mathematical gems. All of these gems are completely accessible by the end of school mathematics, and most well before. Some receive minor attention in the curriculum, though none commensurate with the status of a gem; a number of the gems are absent entirely. Clear conclusions follow, but we will focus upon the gems themselves, and keep the polemics to a minimum. For the latter, please contact Mr Hyde.

Marty Ross is a mathematical bum. At the age of 2, he ran away from America to join the circus. After some controversy involving an elephant, he returned to America to complete his PhD on abstract geometry at Stanford University. Following a stint at Rice University, he came back to Australia. Since, he has wandered from Maths Department to Maths Department, aimless but happy. His activities with his colleague Burkard Polster can be checked out at www.qedcat.com.
D4 Making the Most of Mathematics Manipulative Materials
Workshop  Years: Prep - 6
Paul Swan - Edith Cowan University
Linda Marshall - Edith Cowan University
Based on research carried out at Edith Cowan University, this session will highlight some key findings about the effective use of mathematics manipulative materials – warts and all, and will offer practical applications of these findings. As this session is designed to be hands-on, participants are encouraged to bring along a camera to record the ideas that are shared.

Note: Please bring a camera or mobile phone camera to record the various ideas and activities.
Repeated as H9

D5 Exploring Coaching for Effective Mathematics Instruction Using the e5 Workshop  Years: Prep - 6
Naomi Sordello - Grampians Region
Paula Shaw - Grampians Region
How might we use the e5 instructional model as a coaching tool for effective mathematics instruction? Join Naomi Sordello and Paula Shaw, Teaching and Learning Coaches from the Grampians Region, in exploring strategies to build the capacity of teachers to deliver effective mathematics using the e5 Framework.
Repeated as B5

D6 Articul8 Maths Lecture  Years: Prep - 6
Donna Ludvigsen - Grampians Region Department of Education & Early Childhood Development
Melinda Williams - Mount Pleasant Primary School
Donna Ludvigsen (Grampians DEECD) and Melinda Williams (Teaching & Learning Coach) believe in the importance of TALKING in maths lessons. In this workshop they will explore a range of talk: both teacher talk and student talk, and link it to the structure of the lesson and e5. Establishing learning intentions, focussed anecdotal notes, strategic questioning, articulation of key ideas, share time strategies, cooperative and collaborative groups will all be discussed. This workshop will provide teachers with a wealth of strategies to be used in their maths classroom.
Repeated as C6

D7 Playing with Blocks: Investigative Maths for the Whole School Workshop  Years: Prep - 6
Chris Sharp - Brunswick East Primary School
Lisa Audino - Brunswick East Primary School
Sarah Childe - Brunswick East Primary School
Brunswick East Primary School staff have been engaged in a whole school focus on improving mathematics pedagogy through an action research project. We have been using Maths300 lessons and we intend to show how investigative maths can be adapted across all primary year levels P-6 in multiage classes.
Not repeated

D8 The e5 Instructional Curriculum and Open-Ended Numeracy Tasks Lecture  Years: Prep - 6
Fiona Pratt - River Gum Primary School
Latham Burns - River Gum Primary School
Amanda McLean - River Gum Primary School
Mathematics teaching needs to be purposeful to our students and related to real-life situations. We need to engage our students and enable them to be involved in their own learning. We need to explicitly teach strategies and encourage students to articulate their understandings. The e5 Instructional Model provides a clear and effective way to begin to change the way that Mathematics is being taught in our classrooms. We have raised the profile of Maths through focusing on the five domains of Engage, Explore, Explain, Elaborate and Evaluate. We will present what we set out to achieve and what we have achieved, with the introduction of e5 and open-ended tasks at River Gum Primary School.
Repeated as E7

D9 It’s All About SAM-Antics Lecture  Years: Prep - 6
Loretta Weedon - Catholic Education Office
Jo Adams - Catholic Education Office
The Catholic Education Office Melbourne has employed six full time School Adviser Mathematics (SAMs) to work with post review catholic primary schools. The SAMs work closely with leadership teams and classroom teachers who have identified mathematics as a key priority. The aim is to improve teachers’ mathematical pedagogical content knowledge (MPCK) and students’ mathematical outcomes. This presentation will show and discuss the
successes and challenges; what works – what does not work!

Replaced as E6

D10 Running a Maths Games Day at your Primary School
Workshop

Colleen Monaghan - Catholic Education Office, Northern Region

So you’d like to raise the profile of Maths at your school? This workshop will explain how easily you can do that with a games day for each level or one games day for the whole school. We will look at how to organise, set up and run a fun games day that will have the children, teachers and school community loving Maths! Practical ideas and handouts to take away.

Replaced as E4

D11 Mathletics User Group For New Users
Computer Workshop

Claire O’Connor - 3P Learning/Mathletics

This session is for teachers new to Mathletics to hear news on the latest developments, share experiences and ideas and understand how to help students improve using the resource. (Commercial Presentation)

Replaced as F9

D12 Hands-on Computer Workshop with Kinetic Education
Computer Workshop

Mary Sanghvi - Kinetic Education
Jonathan Sanghvi - Kinetic Education

Kinetic Education “Maths Wiz” is a structured program, supporting VELS and VCE Methods, Further and General Maths. It has a very strong teaching component, and is an engaging way of assisting students who are falling behind or striving for great things. There are more than 1,000 lessons and activities, each accompanied by tests and solutions. (Commercial Presentation by the developers).

Replaced as C10

D13 What Counts in Imaging?
Workshop

Robyn Winchester - University of Canterbury - Education Plus

How can teachers most effectively use student’s number sense to support and build confidence in imaging? This workshop outlines the importance of the following for student success in imaging;

◊ building a strong number sense
◊ careful selection of equipment
◊ precise teacher questioning
◊ promoting student talk

This workshop will look at building a bridge between materials and understanding (i.e. addressing the needs of the figurative child), and identifying the subtle steps within imaging.

Replaced as E10

D14 Using Progression Points for Diagnostic (Formative) Assessment: Chance
Lecture

John Gough - Deakin University

Find every Chance-related Progression Point, in Level-order, from Prep to Year 10. Translate each Point into a pencil-and-paper task. This makes a developmentally (progressively) graded worksheet-like “diagnostic profile” for assessing Chance. It diagnoses by starting with easy, early questions, and getting harder and harder, as the concepts and skills in the Chance curriculum develop. Presenting this diagnostic profile to students at the beginning of a unit of work on Chance gives invaluable formative assessment information to guide your teaching. Repeat this, or a parallel version, at the end, to provide before-and-after summative assessment of the students’ learning during the unit.

Not repeated

D15 Handling Fractions
Workshop

Peggy Ashton - La Trobe University
Jenny Vincent - La Trobe University

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.

Replaced as C13
D16  Problem Solving with Pentagon Triangles
Workshop

Douglas Williams - Black Douglas Professional Education Services

Take a regular pentagon and cut it into triangles along its diagonals. The isosceles triangles which result offer a wide range of investigations into shapes and their properties, similar triangles, ratio and proportion, square numbers, Fibonacci numbers, the Golden Ratio and the concept of proof. And all this is embedded in the problem solving context of learning to work like a mathematician. You can carry out all these activities by cutting your own sets from card, but we will use the attractive foam pieces which are available from the Mathematics Task Centre.

Not repeated

D17  Decimals Done the LAB Way
Workshop

Janeane Anderson - Catholic Education Office
Anna Bock - St Mary's Primary School

The Learning of Decimals is essential for living in Australia for metric measurement and money operations. However whilst students learn processes it is often the case that the concept of what value a decimal quantity is not fully understood. This has been expressed in the language and written form of decimal notation that is not representative of its value. This workshop will explore the use of the LAB—Linear Arithmetic Blocks material in developing understanding in students. The material was presented by Melbourne University in the SINE (Success in Numeracy Education) a Catholic Education Office teacher professional development for Years 5-8 but it also could be a valuable as a tool for Year 3-4 as they are introduced to the notion of decimals as an extension of the whole number system. The workshop will allow participants hands-on experience with the LAB and recent classroom examples of how it has been used and its connection to the Mathematics Development Continuum.

Not repeated

D18  Lesson Study
Lecture

Kathryn Palmer - WMR Regional Coach, Melton Network
Caroline Mazurkiewicz - Kurunjang Secondary College

Using Japanese Lesson study as a way for school based coaches or learning teams to improve the quality of the learning experiences they provide to their students. We have used it to significantly improve teaching and learning in the classroom as well as providing support for differentiating the curriculum. In this session we will provide an overview of the journey we have undertaken as regional numeracy coaches in both secondary and primary schools.

Repeated as C19

D19  Reasoning and Communication in the Mathematics Classroom – Some ‘What’ Strategies
Lecture

Berinderjeet Kaur - National Institute of Education

This session focuses on specifically four ‘what’ strategies that middle school teachers may use to develop their students’ reasoning and communication. Though it is often assumed that learning of mathematics is virtually impossible without reasoning, of particular interest in this session are the types of mathematical tasks that may be used by teachers to explicitly provide contexts for students to work collaboratively with their peers and engage in reasoning. The four ‘what’ strategies explored in this session are what number makes sense?, what’s wrong? what if? and what’s the question?

Repeated as E19

D20  Developing Understanding of Fractions Using Number Lines and Measurement Models
Workshop

Catherine Pearn - University of Melbourne
Max Stephens - University of Melbourne

Students who appear to have mastered routine algorithms for working with fractions may lack deep understanding of fractions. Some students’ have had limited experiences in using number lines (including a measurement model) to represent fractions and whole numbers. Use of number lines provides a powerful diagnostic tool that can highlight surprising misconceptions. On the other hand number lines and measurement models can also be used to support deeper understanding and verbalisation of fractions and operations. 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 E18

D21  Engage Me Don’t Enrage Me - Engaging Software for Maths in the Middle
Workshop

Lauren O’Grady - Edsoft Pty Ltd

How do you make mathematics beneficial and enjoyable? How do you maximise the use of your Interactive
Whiteboard for use in Mathematics classes? In this hands-on IWB session have a go at the latest software and IWB resources for mathematics classes.

Not repeated

D22 Tinkering With Real Data
Computer Workshop
Andrew Stewart - Presbyterian Ladies’ College
Rachel Bucsuhazy - Australian Bureau of Statistics
Students love using data relevant to themselves and CensusAtSchool provides that source of data. Using the real data freely available from the CensusAtSchool project, this workshop will show how software such as Excel® or Tinkerplots® can provide a springboard for rich explorations. The workshop will provide you with some take-home examples that will enable you to get started using CensusAtSchool data with your students. If you would prefer to set up and use your own data – to give your students ownership of what is happening – we can provide advice on this process as well. (Commercial Presentation)
Repeated as C28

D23 Adventures With the Virtual Mathomat
Workshop
Ted Marks - Albion North Primary School
Steve Lewis - A.U.S.I.E. Maths Consultant
John Lawton - Objective Learning Materials
Adventures With The Virtual Mathomat is a new software program which uses the interactive whiteboard to introduce and conduct lessons and investigations with the Mathomat template. The program introduces students to the Mathomat template and then uses it to explore key concepts including tessellations and navigation. In 2010 this stand alone program will also be integrated with Math Trek software, where the Virtual Mathomat will appear as a tool along with the Acme Ruler and virtual MAB. The virtual materials in this workshop aim to inspire students by being a bridge between concrete and computerised tools. (Commercial Presentation).
Repeated as H25

D24 Becoming More Interactive in Year 7 Maths
Workshop
Michael Symons - Mt Eliza Secondary College
Rhonda Keysers - Mt Eliza Secondary College
Having students use interactive whiteboards, wiimote or Wacom tablet brings more excitement to Maths classrooms. All you need then is engaging software and some creative ideas for its use and the students will love Maths again! Throw in a variety of materials and manipulatives then structure it carefully and your lessons become truly interactive.
Not repeated

D25 Grouping and Strategies for Differentiation of the Mathematics Curriculum Junior Secondary
Lecture
Sue Ditchfield - Monbulk College
This option is a look into using groupings of students for part of your class time to enable differentiation of the Mathematical Curriculum. This includes the use of online programs such as Mathletics and open ended tasks such as those obtained from Maths300. Prior learning is used to assist with groupings which change for each topic. Students are encouraged to be responsible for their own learning and hence create their own individual learning plan. All students are encouraged to extend their learning. Withdrawal enrichment is a feature which also enables targeted support for students who struggle with their Mathematical learning. This is not a Commercial Presentation but will make reference to Commercial programs available, Mathletics & Maths300.
Repeated as F27

D26 Bungee Jumping and the Leaning Tower of Poser
Workshop
Denis Day - Glenvale School
Subra Muniandy - Glenvale School
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 C31
D27  i-maths in the Middle School
Computer Workshop  Years: 7 - 10
Paul Nugent - Mentone Grammar School
Jo Bradley - Mentone Grammar School

Looking at how students use different thinking routines, reflect and summarise their work using technology such as ipods. Obstacles are presented within a framework which encourages students to think mathematically. The class framework involves the use of whole class tuition, independent groups, guided groups and explicit whiteboard clinics. This suggested structure permits a range of differentiation in a Middle Years classroom. The structure also encourages and supports the use of thinking routines, active reflection and the development of distinctive features from research conducted in the use of these routines. Time to engage with questions which are purposeful and develop authentic learning are integral to the process overall. It is an aim that student participation in this way will facilitate greater individual acceptance of responsibility for their learning.

Repeated as C29

D28  Problem Solving for Able Students
Workshop  Years: 7 - 10
Derek Holton - University of Melbourne

Problems from many years experience will be presented along with a discussion of why do problem solving and why do it with able students. This will be a hands-on workshop and participants will be expected to bring with them pens, paper and enthusiasm.

Repeated as G25

D29  “5-4-3-2-1 Boards Up!” - Increasing Classroom Engagement Using Mini-Whiteboards
Workshop  Years: 7 - 10
Vebica Evans - Pearson Education Australia

What’s white, rectangular, interactive and loved by students, but doesn’t cost $3000+ for a school to install? Answer: Mini-whiteboards. A tool that is used extensively in UK classrooms, mini whiteboards allows all students time to think about questions and the opportunity to give answers. They can be used like ‘IWB voting clickers’ without the cost and set-up. In this session you will explore how you can enliven your classes using mini-whiteboards and you will learn tips for managing their use in your classroom. You will walk away from this session with some practical ideas and activities, and the confidence to use them in your classroom.

Repeated as A23

D30  Interactive Maths Series Software Training (Computer Workshop)
Computer Workshop  Years: 7 - 10
Paul Rehill - mathsteacher.com.au

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 1222 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 1222 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 G27

D31  Using Problem Solving to Engage Students in Their Study of Linear Equations
Lecture  Years: 8 - 9
Russell James - Fairhills High School

This year Fairhills High School undertook a Teacher Professional Leave project investigating the integration of problem solving activities into the teaching of Year 8/9 linear equations and graphs. The result was a series of investigative and skill development tasks that staff felt were a considerable improvement on the mainly textbook approach used previously. Participants who attend this MAV conference option will be given copies of the activities that were trialled and will have the opportunity to discuss the pedagogical approaches used by the teachers involved in the project.

Repeated as F34

D32  Hands-on Scale Drawing and Trigonometry
Workshop  Years: 8 - 10
Ian Lowe - The Mathematical Association of Victoria

The reading and interpretation of maps, plans and diagrams depends on a clear understanding of scale. Scale
and the use of proportion is the basis of a proper understanding of trigonometry - both for right-angled triangles and circular functions. Ian will workshop several activities that develop these ideas from simple scale to solving trig problems.

**Not repeated**

D33 Year 9 Enriched Workshop

*Renae Miszkurha - Caulfield Grammar School*

Lisa Saffin - Caulfield Grammar School

This is a resource and hands-on activity session focusing on engaging and motivating Year 9 students to develop deeper mathematical thinking. Both CAS and non-CAS activities will be included.

*Note: Please bring a CAS calculator. (No calculators will be provided for participants).*

**Repeated as G33**

D34 Sailing into Trigonometry Workshop

*Anthony Harradine - Prince Alfred College*

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. This is a repeat of the very popular MAV 2008 workshop.

*Note: BYO geometry or loan system available.*

**Repeated as E31**

D35 Introducing TI-Nspire CAS at Years 9 and 10 Workshop

*Natalie Caruso - MacMillan Education Australia*

This workshop is aimed at teachers at Years 9 and 10 levels who are starting out using TI-Nspire CAS with their students. Techniques and procedures for using this technology effectively in a variety topics will be demonstrated. Participants are required to bring their CAS calculator to use in this session. (Commercial Presentation - A publication relating to this presentation will be shown to participants at the end of this session by a Macmillan representative.)

*Note: Participants are required to bring their CAS calculator to use in this session.*

**Not repeated**

D36 Get Excited About the Mathematics in Surveying - An Innovative Mathematics Excursion Lecture

*Mary Barnes*

Mathematics teachers in Sydney have been cooperating with surveyors to organise excursions for mathematics students, to engage them in a range of challenging activities exploring practical applications of mathematics. These include finding the height of a tower, mapping a garden, finding the earth’s radius by an adaptation of Eratosthenes’ method, and setting out a pattern. They make use of both the most modern surveying equipment and measuring tapes and compasses. This presentation outlines the organisation of the day and describes some activities. Surveyors in Victoria are keen to organise a similar excursion and are seeking interested mathematics teachers.

**Repeated as E33**

D37 Indices on the TI-Nspire CAS Workshop

*Russell Brown - Educational Consultant*

*Maree Timms - Galen Catholic College*

A hands-on session that will address different approaches to teaching indices on the TI-Nspire CAS handheld. Use the CAS functionality and spreadsheet to show the specific and general cases of indicial expressions and equations, explore the families of exponential and logarithmic functions (including transformations) using a variety of methods, plus more!

*Note: Loan TI-Nspire CAS handheld will be available or bring your own.*

**Repeated as C37**

D38 Advanced GeoGebra Computer Workshop

*Brendan Owen - Jacaranda (John Wiley & Sons)*

*Cameron Hallowell - Jacaranda (John Wiley & Sons)*

This is a hands-on computer workshop developing lessons using GeoGebra. GeoGebra is an open source (free application) which provides teachers and students with a software package for displaying and manipulating graphs and geometry objects. The new version includes new features such as a spreadsheet view, commands for statistics, matrix, complex numbers and animated sliders. Powerful and easy to use, its dynamic nature makes it a great tool to
explore mathematical concepts. This is an advanced session for teachers with a working knowledge of GeoGebra. We will explore some more intermediate and advanced techniques to bring out the best of GeoGebra.

**Revised as E35**

**D39**  Working Mathematically on the ClassPad  
**Workshop**  
Craig Tellefson - Academy of Mary Immaculate  
Jamal Gorgees - Academy of Mary Immaculate  
Years: 10 - 10  

In this workshop the Casio ClassPad is used to present an approach to Working Mathematically for Year 9 or Year 10. Participants will work through an investigation that utilises the ClassPad and illustrates the use of iteration, recursion and algebra to model and analyse a changing fish population. The activity as used in the presenter’s school is presented along with examples of student work.  

**Note:** ClassPads will be available for all participants and no prior experience with this technology is assumed or required.

**Not repeated**

**D40**  Calculators - The Cane Toads of the Education System?  
**Workshop**  
Gael McLeod - Glen Waverley Secondary College  
Years: 10 - 12  

Marty Ross uses this description for calculators but is it true? Can calculators be used to bring magic into the world of mathematics? This session will explore ways in which data can be transformed into equations and graphs in several different methods using a Casio ClassPad CAS calculator. It will be a hands-on session suitable for beginners to the moderately proficient. This session will use the Casio ClassPad but it is not a commercial presentation.  

**Note:** Bring your own ClassPad if you wish but calculators will be provided for use.  

**Revised as E38**

**D41**  An Overview of Year 11 Mathematical Methods Course for the Teachers Who Are New to Teaching this Subject  
**Workshop**  
Nalini Ekanayake - Sacred Heart Girls’ College  
Years: 11 - 11  

Teaching Year 11 Mathematical Methods course is very challenging to teachers who have not had much experience in teaching this subject. Catering for students with varied ability and knowledge levels and preparing them for Year 12 Methods course while battling with time is not easy. In this session a teacher who has had more than 15 years of experience with VCE maths will offer teachers who are new to the subject ideas on course outline with suggested time allocations for each different topic, different ways of explaining some hard concepts, and also provide the participants sample Assessment Tasks.  

**Revised as A38**

**D42**  The Roller Coaster Application Task Review  
**Lecture**  
Michael Cody - Camberwell Grammar School  
Years: 12 - 12  

In 2008 I talked about the plan for our Application Task in 2009. This session is about the final format - and the success or otherwise of the task that spanned 4 weeks of school.  

**Revised as C42**

**SESSION E: 9:00am - 10:00am Friday 4th December**

**EK1**  Contemporary Content Topics for the National Curriculum  
**Keynote**  
Calvin Irons - Queensland University of Technology  
Years: 3 - 7  

Over the past few decades changes in mathematics curricula have focused on the pedagogy (mental strategies rather solely algorithmic) and the method of delivery rather than the content that is taught. Some content receives more emphasis and some has been reduced, delayed or disappeared but there is nothing really new. In the same time, many applications of mathematics are now common place, but the content that makes these innovations function are not included in the curriculum – at any stage. This session will describe some of the content that is appropriate for the upper primary and junior secondary years that can make the contemporise the mathematics curriculum. Examples will include content that has never been taught in the past, old content with a renewed need, and current content that needs greater emphasis. Plenty of examples for classroom use will be provided.  

**Dr Calvin Irons** has been involved in mathematics education for over 40 years as a primary teacher, university lecturer (currently at QUT), researcher (topics have included the teaching of division, number facts and mental...
In his role at Queensland University of Technology, he works with pre-service students and conducts numerous professional development activities nationally and internationally. He is a prolific writer, having written nearly 600 books and articles. His books have won numerous publishing awards from organisations such as the Australian Publishing Association, the National Education Association in the USA, and the National Science Foundation.

**EK2 Developing Mathematical Language - Key to Conceptual Development**

*Keynote*

*Brian Tweed - Massey University College of Education, New Zealand*

The New Zealand Numeracy Project (in both English and Māori languages), has highlighted many issues connected with how students learn Mathematics. One of the major issues is the role that language plays in student achievement. The interconnections between Mathematical language development, pedagogy and conceptual development will be explored along with consequences for how mathematics courses could be planned, implemented and assessed. A framework for developing language in mathematics activities will be presented along with initial findings from research into its implementation in Year 7-10 classrooms.

*Brian Tweed is originally from the UK, with a background in mathematics research in numerical analysis, Brian moved to New Zealand in 1988. He has taught in a wide range of secondary schools and in many fields including Information Technology, Science and Languages. In recent years he has been an adviser to secondary schools at Massey University College of Education specialising in Ma-ori language immersion schools. His current interest in the development of Mathematical language alongside Mathematical problem solving skills is stimulated and informed by his work in both mainstream schools and Ma-ori immersion schools. He his about to begin working towards a Phd focussing on the developemnt of Mathematical language in Te Reo Ma-ori.*

**EK3 Graphics Calculator Technology - Black Box or a Pandora’s Box, It’s Your Decision**

*Keynote*

*Russell Brown - Educational Consultant*

Several schools started using graphing calculators well before their approval for examinations. At Bendigo Senior Secondary College the incumbent Head of Mathematics had just returned from an exchange position in the US had all the ‘good news’ about this new technology. Lets face it – I thought it was just another calculator. Many years on, and the compulsory use of them in examinations, has led to many innovative teaching practices. Is the prime reason for students having one in their hand for examinations where it is ‘a black box’ that gives instant answers? This presentation will address the teaching and learning progression that takes advantage of this technology and looks outside the ‘black box’ with examples and anecdotes taken from my teaching at the coal face over many years. With an emphasis on differing student learning styles many topics can be approached in varying ways with this technology. Whilst the original graphics calculators had many features that allowed explorations it is the new wave of CAS graphics calculators that are much more than black boxes. It is us, as teachers, that have the opportunity to open Pandora’s Box to improve student outcomes.

*Russell Brown is a senior Mathematics & Science teacher having most recently taught at Bendigo Senior Secondary College. Currently he works as an Educational Consultant in Mathematics & Science Education. Russell has presented on the use of hand-held and computer based technology at Mathematics and Science conferences throughout Australia, New Zealand, SE Asia, and USA with an emphasis on pedagogical approaches to teaching both mathematics and science using technology. He has also been involved in curriculum and methodology discussions with ministry and other key personnel in Australia, New Zealand, Thailand, Malaysia, Singapore and Hong Kong. He has had a consultative role to the Victorian Curriculum and Assessment Authority and Curriculum Council of WA on the implementation of Computer Algebra Systems (CAS) into Victorian and Western Australian schools, particularly in the area of the use of hand-held technologies in external examinations.*

**E4 Running a Maths Games Day at your Primary School**

*Workshop*

*Colleen Monaghan - Catholic Education Office, Northern Region*

So you’d like to raise the profile of Maths at your school? This workshop will explain how easily you can do that with a games day for each level or one games day for the whole school. We will look at how to organise, set up and run a fun games day that will have the children, teachers and school community loving Maths! Practical ideas and handouts to take away.

*Repeated as D10*
E5 Lessons From Japan – What Can we Learn From Japanese Structured-Problem-Solving Lessons?
Lecture

Susie Groves - Deakin University

Despite stereotypical views of Japanese teaching as highly traditional, international studies consistently find not only high levels of performance by Japanese students, but also that Japanese mathematics lessons focus on understanding, with the teacher posing complex, thought-provoking problems, and students’ presentations of their solutions being used as the basis for learning. This presentation will use classroom video to illustrate Japanese structured-problem-solving lessons, and discuss how they are planned, the role of the teacher, and the use of Lesson Study as a means of professional development. The purpose is not to mimic Japanese practice, but rather to support reflection on our own practice.

Not repeated

E6 It’s All About SAM-Antics
Lecture

Loretta Weedon - Catholic Education Office
Jo Adams - Catholic Education Office

The Catholic Education Office Melbourne has employed six full time School Adviser Mathematics (SAMs) to work with post review catholic primary schools. The SAMs work closely with leadership teams and classroom teachers who have identified mathematics as a key priority. The aim is to improve teachers’ mathematical pedagogical content knowledge (MPCK) and students’ mathematical outcomes. This presentation will show and discuss the successes and challenges; what works – what does not work!

Repeated as D9

E7 The e5 Instructional Curriculum and Open-Ended Numeracy Tasks
Lecture

Fiona Pratt - River Gum Primary School
Latham Burns - River Gum Primary School
Amanda McLean - River Gum Primary School

Mathematics teaching needs to be purposeful to our students and related to real-life situations. We need to engage our students and enable them to be involved in their own learning. We need to explicitly teach strategies and encourage students to articulate their understandings. The e5 Instructional Model provides a clear and effective way to begin to change the way that Mathematics is being taught in our classrooms. We have raised the profile of Maths through focusing on the five domains of Engage, Explore, Explain, Elaborate and Evaluate. We will present what we set out to achieve and what we have achieved, with the introduction of e5 and open-ended tasks at River Gum Primary School.

Repeated as D8

E8 MAV Maths Talent Quest - Working Mathematically - Investigation Projects
Workshop

June Penney - Darley Primary School
Kelly Gallivan - St Kevin’s College
Breigh Willcox - Darley Primary School

In its 28th year, the Maths Talent Quest (MTQ) is an important component of the MAV’s student activities program. Do you want to find out more about the MTQ and how it links to VELS? Do you want to know why students and teachers love it and how to run it in your school? Come join us! You will also be provided with the opportunity to ask questions, discuss ideas and read past exemplary investigation projects.

Repeated as F7

E9 Mathletics User Group for Experienced Users
Computer Workshop

Brendan Colley - 3P Learning/Mathletics

This session is for teachers with experience using Mathletics to hear news on the latest developments, share experiences and ideas, understand how to help students improve using the resource, learn how best to differentiate and create course material. (Commercial Presentation)

Repeated as C9

E10 What Counts in Imaging?
Workshop

Robyn Winchester - University of Canterbury - Education Plus

How can teachers most effectively use student’s number sense to support and build confidence in imaging? This workshop outlines the importance of the following for student success in imaging;

◊ building a strong number sense
◊ careful selection of equipment
precise teacher questioning
promoting student talk
This workshop will look at building a bridge between materials and understanding (i.e. addressing the needs of the figurative child), and identifying the subtle steps within imaging.

Repealed as D13

E11 Developing a Whole School Approach to Addition and Subtraction Mental Computation
Lecture
Angela Rogers - St Monica’s Primary School
Bernadette Long - St Monica’s Primary School
This session is suitable for Primary school teachers wishing to improve the mental computation skills of their students. It will provide ideas on how to develop a whole school approach to addition and subtraction mental computation using examples from our experience as Numeracy Co-ordinators at St Monica’s Primary School. Practical examples of assessment and monitoring will be provided, as well as quality resources and games to assist in the development of children’s mental computation skills.

Repealed as F10

E12 Place Value - The Foundation of all Mental and Written Computations
Workshop
Adele Webster - Our Lady Help of Christians Primary School
Chris Lynch - Our Lady Help of Christians Primary School
Valerie McCallum - Our Lady Help of Christians Primary School
Four practical hand-on classroom teachers will provide practical, fun and engaging games and activities to help your students develop a sound concept of place value, which provides the necessary foundation for all mental and written computations. These have been trialled and practised in ‘real classrooms’ over the last twelve months as part of a research project which has been sponsored and published by the Curriculum Corporation.

Not repeated

E13 Making the Connection: Helping Struggling Students Achieve in Mathematics
Workshop
Anita Chin - Origo Education
This workshop will be a hands-on follow up to the keynote address with ideas that can be used in the classroom immediately. Engaging activities that can be differentiated both for students experiencing difficulty and those who can complete the task easily will be used by all participants. Key models for building connections between concrete, pictorial, verbal, and symbolic representations of number and algebraic concepts will be demonstrated. Strategies to cater for all students in a mixed ability classroom and practical ideas for implementation will be modelled.

Not repeated

E14 Teach For Understanding First
Workshop
Ian Lowe - The Mathematical Association of Victoria
Starting from before prep level and extending beyond Year 12, mathematics is an inter-related set of big ideas. An important part of building mathematicians is the growing understanding of this map of ideas. But teaching for understanding is not the same as teaching skills. Ian will workshop activities that build understanding in some of the key topics in middle years.

Not repeated

E15 Problem Solving with Trisquares
Workshop
Douglas Williams - Black Douglas Professional Education Services
There are only two ways to join three squares edge to edge in domino-style and the L-shaped Trisquare is the more interesting. It can be used to explore spatial perception challenges, value relations involving whole numbers, decimals and fractions, perimeter and area, pattern, algebra, tessellations and probably more. And all this is embedded in the problem solving context of learning to work like a mathematician. Trisquares can be easily made by teachers or students but in the workshop we will use the Plastazote ones available from the Mathematics Task Centre.

Not repeated
E16  Action Research in Maths - Whole School Change
Workshop  Years: 4 - 6
          John Davidson - Brunswick East Primary School
          Jill Howell - Brunswick East Primary School
          Tess Haycox - Brunswick East Primary School
Brunswick East Primary School has embarked on an Action Research Project to develop the Learning and Teaching of Mathematics across the whole school. Key factors for success have been to establish learning communities, multiage classes, intense professional development, and a reflective approach to teaching.

Repeated as C16

E17  Fun with Fractions
Workshop  Years: 4 - 7
          Judith Callaghan - University of Canterbury - Education Plus
A hands-on workshop that gives teachers an opportunity to experience a range of innovative practical ideas that will help to broaden and develop student’s number sense in fractions.

Repeated as F19

E18  Developing Understanding of Fractions Using Number Lines and Measurement Models
Workshop  Years: 5 - 8
          Catherine Pearn - University of Melbourne
          Max Stephens - University of Melbourne
Students who appear to have mastered routine algorithms for working with fractions may lack deep understanding of fractions. Some students’ have had limited experiences in using number lines (including a measurement model) to represent fractions and whole numbers. Use of number lines provides a powerful diagnostic tool that can highlight surprising misconceptions. On the other hand number lines and measurement models can also be used to support deeper understanding and verbalisation of fractions and operations. 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 D20

E19  Reasoning and Communication in the Mathematics Classroom – Some ‘What’ Strategies
Lecture  Years: 5 - 8
          Berinderjeet Kaur - National Institute of Education
This session focuses on specifically four ‘what’ strategies that middle school teachers may use to develop their students’ reasoning and communication. Though it is often assumed that learning of mathematics is virtually impossible without reasoning, of particular interest in this session are the types of mathematical tasks that may be used by teachers to explicitly provide contexts for students to work collaboratively with their peers and engage in reasoning. The four ‘what’ strategies explored in this session are what number makes sense?, what’s wrong? what if? and what’s the question?

Repeated as D19

E20  Data Loggers for Mathematics
Workshop  Years: 5 - 8
          Daniel Avano - Scienceworks
          Bronwyn Quint - Scienceworks
Data loggers have been used in science classrooms for some time now, but can they be used in the maths classroom as well? Using data loggers, ‘real’ data can easily be collected by students using sensors. Graphs and tables can be shown to have relevance to ‘real’ events, not just numbers copied out of a book. Using data loggers to collect the data used for analysis, changes in variables can be tracked showing the resulting changes in graph shapes and data trends. Combining collected data with a program such as Excel students can easily produce tables and graphs for analysis.

Repeated as H21

E21  Working Mathematically: Australasian Problem Solving Mathematical Olympiads Workshop
Workshop  Years: 5 - 8
          Anne Prescott - APSMO Inc
          Jon Phegan - APSMO Inc
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)

Note: Please bring writing materials – but calculators are NOT allowed!

Repeated as F24
E22 Engaging Middle Years Students in Mathematics Using the MATHOMAT Workshop

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

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)

Repeated as B17

E23 The Classroom Organiser: A Planning, Organising and Tracking System Computer Workshop

Bill Murray - Mentone Girls' Secondary College

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 compared to the teachers planned outcomes and communicate effectively with students and parents. To do all of this while creating a significant reduction in workload in the organising, planning and tracking processes that we are all supposed to use. This program has been developed for teachers, by teachers, it is available for immediate download, sample topic plans are available and there is a trial period that teachers can take advantage of. (Commercial Presentation)

Note: Please bring your own laptop, fully charged so that you can download and use the program during the session.

Repeated as A19

E24 Whole Class Activities for Year 7 to 10 Workshop

Theresa Pagon - Strathmore Secondary College
Lyn Elms - Jacaranda (John Wiley & Sons)

This session presents a variety of whole class activities which target concept development and consolidation of material covered in Year 7 to 10 Maths. Finding whole class activities that exactly match the concepts covered in class, contain no assumed knowledge from other areas that you haven’t covered yet or use equipment that you don’t have is time consuming. The activities presented are short activities, use material found in most Maths store cupboards, use the same language as that used in most Victorian textbooks and don’t contain any prerequisite knowledge. Each participant will receive a booklet with sample activities. (Commercial Presentation)

Repeated as A26

E25 The Daramalan Experience: Electronic Assessment Success! Lecture

Tony Allan - Daramalan College Canberra

Teachers at Daramalan College in the ACT are now regularly using labs and sets of laptops in maths. Formal e-assessment has arrived big time, with teachers using computers for almost half of their formal testing. e-assessment brings both challenges and opportunities which are reviewed in this session. Computers are also being used for practice and revision of everything from basic number skills to the hardest corner of the curriculum. This year already over 50,000 sets of work have been marked for 500 students and their 20 teachers, saving hours of marking and giving students instant feedback and pleasure at monitoring their own progress. This session shows how this can be achieved in every Australian school. (Commercial Presentation)

Repeated as A28

E26 Macmillan Active: A New Concept in Homework Programs for 7-10 Lecture

Monique Miotto - Mathematics Consultant for Macmillan Education
Ingrid Kemp - Macmillan Education Australia

Is your school looking for a homework program that offers skill sheets, investigations and technology tasks directly linked to classroom topics? Do you need a program that will stand alongside your existing textbook series and demonstrate how technology is being used? In this workshop, the lead author and publisher will introduce this versatile, soon to be published, national homework program, written by a team of experienced teachers wishing to provide other teachers with accessible and engaging tasks that can be easily integrated into existing syllabi. Information packs including sample activities will be provided to all participants. (Commercial Presentation)

Repeated as A27
Web2.0 tools, integrated with freeware such as GeoGebra and Google Sketchup, can be used by teachers to create online learning environments that are flexible, meaningful and engaging for students. Weblogs, wikis and online documents can be used by students to create online portfolios involving communication and collaboration. Within a set of teacher guided experiences, students demonstrate creative thinking and mathematical reasoning to cohere their understanding within a purposeful context. During this session participants will be given an overview of Web2.0 and a hands-on exploration of some web applications that can be incorporated to produce their own customisable teaching and learning environments.

Note: Participants should create an account at Wikispaces prior to attending the session - www.wikispaces.com.

Not repeated

Practical Reflections on Teaching Senior Secondary Mathematics in Victoria and the People’s Republic of China

Lecture

Hongchun (Holden) Lu - Nanjing Foreign Language School, China
Jessica Wu - The Peninsula School
David Leigh-Lancaster - Victorian Curriculum & Assessment Authority (VCAA)

VCE Mathematics has now been taught at the Nanjing Foreign Language School, Xianlin Campus and the TEDA International School, Tianjin, in the PR China for several years in partnership with the Peninsula School, Victoria and the VCAA. In this workshop we will look briefly at similarities and differences with respect to the corresponding curriculum, assessment and teaching practices, and provide a snapshot with examples, anecdotes and pictures of the context, experiences, and reflections of some teachers and students doing VCE Mathematics in PR China. Participants will have the opportunity to work with some of the teaching materials, learning activities and assessment tasks and approaches used in the Nanjing Foreign Language School Xianlin Campus VCE Mathematics program.

Repeated as A31

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

Lecture

Rob Vermay - St Paul’s Anglican Grammar School

An experienced mathematics teacher nearing the end of a career will share a broad range of useful ideas and strategies of interest to new teachers. Some stimulus activities will be presented and a range of issues such as dealing with individual differences, common errors, class and time management, assessment, current computer, calculator and whiteboard technology, resources, dealing with parents, etc will be addressed. This session is for new teacher at the start of their career and is a repeat of a 2008 session.

Not repeated

Tips for Teaching with Technology

Lecture

Lynda Ball - University of Melbourne
Robyn Pierce - University of Ballarat

Someone once said that when you are teaching with technology you can’t “see the maths for the technology”. This session will explore ways to use technology in a seamless manner to maintain lesson focus on mathematics. Nspire will be used to illustrate examples, but issues and discussion will be equally applicable to other handheld technologies.

Not repeated

Sailing into Trigonometry

Workshop

Anthony Harradine - Prince Alfred College

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. This is a repeat of the very popular MAV 2008 workshop.

Note: BYO geometry or loan system available.

Repeated as D34

Introducing Casio ClassPad at Years 9 and 10

Workshop

Natalie Caruso - MacMillan Education Australia

This workshop is aimed at teachers at Years 9 and 10 levels who are starting out using Casio ClassPad with their students. Techniques and procedures for using this technology effectively in a variety topics will be demonstrated. Participants are required to bring their CAS calculator to use in this session. (Commercial Presentation - A publication
relating to this presentation will be shown to participants at the end of this session by a Macmillan representative.)

Note: Participants are required to bring their CAS calculator to use in this session.

Not repeated

E33 Get Excited About the Mathematics in Surveying - An Innovative Mathematics Excursion
Lecture
Mary Barnes
Mathematics teachers in Sydney have been cooperating with surveyors to organise excursions for mathematics students, to engage them in a range of challenging activities exploring practical applications of mathematics. These include finding the height of a tower, mapping a garden, finding the earth’s radius by an adaptation of Eratosthenes’ method, and setting out a pattern. They make use of both the most modern surveying equipment and measuring tapes and compasses. This presentation outlines the organisation of the day and describes some activities. Surveyors in Victoria are keen to organise a similar excursion and are seeking interested mathematics teachers.

Repeated as D36

E34 eActivities on the Casio ClassPad
Workshop
Rohan Barry - Wodonga High School
eActivities can be a useful teaching and assessment tool. Learn how to construct them and try some that have been used in the classroom.

Note: A Casio ClassPad will be provided for the session but feel free to bring your own.

Repeated as F38

E35 Advanced GeoGebra
Computer Workshop
Brendan Owen - Jacaranda (John Wiley & Sons)
Cameron Hallowell - Jacaranda (John Wiley & Sons)
This is a hands-on computer workshop developing lessons using GeoGebra, GeoGebra is an open source (free application) which provides teachers and students with a software package for displaying and manipulating graphs and geometry objects. The new version includes new features such as a spreadsheet view, commands for statistics, matrix, complex numbers and animated sliders. Powerful and easy to use, its dynamic nature makes it a great tool to explore mathematical concepts. This is an advanced session for teachers with a working knowledge of GeoGebra. We will explore some more intermediate and advanced techniques to bring out the best of GeoGebra.

Repeated as D38

E36 The Plague, Swine Flu and Exponential Functions: Introducing CAS (TI-Nspire) at Year 10
Workshop
Rita Visser - Luther College
Ian Edwards - Luther College
John Buruma - Luther College
This session is for teachers with little or no knowledge of CAS calculators. Participants will be involved in a class activity developed at Luther College for introducing Exponential Functions and Graphs using data from the plague and swine flu. CAS functionalities such as “Lists”, “Graphs”, “Regression” and “Solve” will be used. Calculators will be provided and each participant will receive an electronic copy of resources with a Powerpoint presentation, class notes and worksheets.

Note: Calculators will be provided to participants.

Not repeated

E37 Promoting Functional Thought in Students
Workshop
Amanda Legg - Lilydale High School
Cathy Drury - Lilydale High School
During this session, I will show how the process of defining functions with TI-Nspire calculator can be used to explore some traditional problems in coordinate geometry. Such activities promote greater student understanding of functions and graphs, and helps prepare students for VCE where CAS experience is necessary and expected. Participants will receive a copy of worksheets used. (Commercial Presentation)

Note: Please bring a TI-Nspire calculator if you have one. Some will be available at the session.

Repeated as C38
E38 Calculators - The Cane Toads of the Education System?
Workshop
Gael McLeod - Glen Waverley Secondary College
Years: 10 - 12
Marty Ross uses this description for calculators but is it true? Can calculators be used to bring magic into the world of mathematics? This session will explore ways in which data can be transformed into equations and graphs in several different methods using a Casio ClassPad CAS calculator. It will be a hands-on session suitable for beginners to the moderately proficient. This session will use the Casio ClassPad but it is not a commercial presentation.
Note: Bring your own ClassPad if you wish but calculators will be provided for use.
Repeated as D40

E39 Problem Solving with the TI-Nspire CAS Calculator
Workshop
Pauline Holland - Jacaranda (John Wiley & Sons)
Shirly Griffith - Jacaranda (John Wiley & Sons)
Years: 10 - 12
This will be a workshop on using the TI-Nspire calculator to solve problems; algebraically and graphically. The level of Mathematics will be towards the senior end of secondary education as some calculus would be expected. It will showcase the efficient and effective ways that a CAS calculator could be used to solve a selected number of worded problems of varying degrees of difficulty. The participants will be given a handout with the problems and solutions including the relevant screen dumps from the TI-Nspire calculator. The emphasis will be on using the calculator and is suitable for beginner users and those with some experience. (Commercial Presentation)
Note: If you have a TI-Nspire CAS calculator please bring it to this session.
Repeated as F41

E40 Virtual Learning Network - Maths Methods Online
Computer Workshop
Kyle Staggard - Bendigo Senior Secondary College
Anne Grealy - Bendigo Senior Secondary College
Years: 11 - 12
The Virtual Learning Network is an exciting project initiated by Bendigo Senior Secondary College and aims to deliver VCE subjects entirely online. The details of the project, including the structure and organisation, the methods used to develop materials and the results of initial trials will be discussed during the workshop. Participants will have the opportunity to explore the learning materials available to students through the Virtual Learning Network site.
Repeated as F43

SESSION F: 10:45am - 11:45am Friday 4th December

FK1 Open-Ended Maths Tasks: Some Hints for Their Use and Development
Keynote
Andrea McDonough - Australian Catholic University
Years: Prep - 4
This keynote is targeted particularly at teachers who have had limited experience with the use of open-ended maths tasks. Hints will be shared that have been formulated through working with and observing a range of teachers, through my own teaching in primary mathematics classrooms, and through working with teacher educator colleagues. A range of tasks will be discussed as well as strategies for their development and use.

Andrea McDonough is a senior lecturer in mathematics education at Australian Catholic University, having previously been a primary teacher with a particular interest in the teaching of mathematics. At university Andrea teaches both undergraduate and postgraduate units as well as supervising postgraduate research students. Andrea's interests include the teaching and learning of measurement, the use of open-ended tasks, the use of games, and the characteristics of highly effective teachers of mathematics. Andrea enjoys working with and learning from teachers and children in classrooms, particularly through her involvement in projects including Contemporary Teaching and Learning of Mathematics (CTLM), the WHOLE project which focuses on middle years' students' learning goals and self-regulation, and, previously, the Early Numeracy Research Project (ENRP).
FK2 Latin Squares: The Maths Behind Sudoku Puzzles
Keynote
Ian Wanless - Monash University

It would startle most sudoku addicts to learn how close they are to some important mathematics. It might also help them overcome a phobia of mathematics to realise that it can be great fun! Working mathematicians spend their days solving puzzles, with the added thrill of knowing that nobody has ever solved the puzzle before. In this session I’ll talk about some of the puzzles I’ve had the pleasure of trying to solve. All involve Latin squares, which are very useful mathematical objects related to sudokus.

Note: Bring a pack of cards if you can, but doesn’t matter if you can’t.

Ian Wanless grew up in Canberra, and studied mathematics at the Australian National University in between working at Questacon - the National Science and Technology Centre and for CSIRO’s Double Helix Science Club. In 1997 he completed his PhD, supervised by Brendan McKay. That was followed by research positions at the University of Melbourne, Oxford University and ANU, and a lectureship at Charles Darwin University. Since 2006 he has been a senior research fellow in the School of Mathematical Sciences at Monash University.

F3 Early Number Sense
Workshop
Vivienne Belcher - University of Canterbury - Education Plus
Elizabeth Johnson - University of Canterbury - Education Plus

This workshop will focus on Stages 1-3 of the Grouping/Place Value domain of The New Zealand Number Framework, Book 1, Numeracy Development Project. Participants will be invited to participate in activities relevant to young children’s number sense development and their later construction of place value understanding. The workshop leader will provide a handout of activities that support this development.

Repeated as G4

F4 Professional Development: New Approaches for the New Millennium
Lecture
Patrick Walsh - Templestowe Valley Primary School
Lisa Weston - Templestowe Valley Primary School
Jennifer Bowden - The Mathematical Association of Victoria

With the introduction of mandated Professional Development (PD) days in Victorian Government schools, a paradigm shift is required to allow teachers and schools to make the most of their PD opportunities. Current literature reinforces the need for teachers to have ongoing support, a number of different approaches and observation of other teachers whilst implementing learning from PD programs to maximise effectiveness. This session documents and explores how Templestowe Valley Primary School, in conjunction with the Maths Association of Victoria as the PD provider, instigated a new approach that reflected current best practice whilst implementing a whole school approach to ‘Working Mathematically’.

Not repeated

F5 Tomorrow’s Mathematics Classroom is Ready Today!
Lecture
Gerard Tuffield - Origo Education

Teachers and students are continually requiring more portable and flexible access to resources. Software is undergoing a paradigm shift in the way it is delivered. The traditional idea that software must exist as a physical item on a single computer is rapidly being replaced by the ‘Cloud’ software model, in which no actual software exists on the user’s computer but instead is hosted on the internet. This session will demonstrate a range of online resources including interactive teaching tools, games for reinforcing mental computation strategies, ready-to-project graphics, electronic tools for bringing mathematics big books to life, a glossary of mathematical terms, and streamed professional development sessions. (Commercial Presentation)

Not repeated

F6 Software for Primary School
Computer Workshop
Tony Collison - School Software

A chance to play in the sand box with software for students from K-6. A range of software from shareware or free sources to commercial titles from School House Technology and Grey Gum including the new Maths Circus 6. (Commercial Presentation)

Repeated as G11
In its 28th year, the Maths Talent Quest (MTQ) is an important component of the MAV's student activities program. Do you want to find out more about the MTQ and how it links to VELS? Do you want to know why students and teachers love it and how to run it in your school? Come join us! You will also be provided with the opportunity to ask questions, discuss ideas and read past exemplary investigation projects.

Repeated as E8

In 2008 the Catholic Education Office Melbourne in partnership with Monash University developed and commenced the professional learning program Mathematics Leadership P-10. This presentation will provide a brief overview of the program and will focus on the key themes contained within the program. Key themes include the importance of a common vision for mathematics and the use of a framework and rubric to assist the identification of goals with the purpose of improving mathematics teaching and learning.

Not repeated

This session is for teachers new to Mathletics to hear news on the latest developments, share experiences and ideas and understand how to help students improve using the resource. (Commercial Presentation)

Repeated as D11

This session is suitable for Primary school teachers wishing to improve the mental computation skills of their students. It will provide ideas on how to develop a whole school approach to addition and subtraction mental computation using examples from our experience as Numeracy Co-ordinators at St Monica’s Primary School. Practical examples of assessment and monitoring will be provided, as well as quality resources and games to assist in the development of children’s mental computation skills.

Repeated as E11

Mathematics is a subject that appears to be studied in school curriculum all over the world. However, whilst in some societies mathematical practices reflects the mathematics that is studied in schools, in other societies some of the mathematical practices in the society differ from those in schools. This paper reports on some of students’ transition experiences in mathematics in Ghana, where some of the mathematical practices in the society differ from school. It also discusses the effect of some of these transition experiences on students’ mathematical conceptions in fractions, and their implications for mathematics pedagogy in multicultural societies such as Australia.

Repeated as G13

This interactive workshop explores ways of encouraging children to use the strategies and knowledge learnt in Number when working in the areas of Geometry and Measurement. Practical ideas for teachers of Years 1–8 will be presented in the form of small investigations.

Note: National Mathematics Curriculum

Repeated as A12
**F13  Strategies that Promote Flexible Mathematical Thinking**  
*Workshop*  
*Anita Chin - Origo Education*  
The forthcoming Australian Curriculum will demand more than the ability to perform mathematical procedures. It will be expected that students will be able to reason and think flexibly to solve problems. This hands-on workshop explores using open-ended questions to pose challenging problems using basic content. Engaging activities that can be differentiated for use in a mixed ability classroom will be used to develop students’ ability to think flexibly and promote number sense and mental computation strategies. Effective sets of ideas to assist with implementation and assessment in a mixed-ability class will be modelled.  
*Not repeated*

**F14  Fantastic Folding Feats**  
*Workshop*  
*Allan Turton - Origo Education*  
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*

**F15  The 24 Game and 24 Challenge Tournament**  
*Workshop*  
*Amanda Cousins - Brainy Days*  
The 24 Game produces lasting, positive benefits through relational understanding of number. Its flexibility is perfect for differentiation and mental computation skills, whilst the tournament element generates whole school excitement and lifts students to a new level of maths proficiency. This hands-on sessions will run you through how to use the 24 Game in the classroom as well as step you through the process of making the 24 Challenge a major event on your school calendar.  
*Commercial Presentation*

**F16  Differentiating Instruction to Improve Learning**  
*Lecture*  
*Ian Lowe - The Mathematical Association of Victoria*  
Given the very wide range of levels and learning styles in a typical classroom the greatest single challenge is to find ways to help all learners to develop optimally. There are two ways to differentiate: open-ended questions (or investigations) and focus teaching of groups at different levels. The MAV's Differentiated Unit Plans demonstrate how this may be achieved - at levels 3 to 10 - and in composite classes too!  
*Not repeated*

**F17  A Revaluation of Newman’s Error Analysis**  
*Lecture*  
*Allan White - University of Sydney*  
Newman defined five specific reading skills as crucial to performance on mathematical word problems: reading, comprehension, transformation, process skills, and encoding. Newman’s Error Analysis (NEA) has experienced a reawakening in New South Wales and has been included in a number of programs such as the Counting On programs. This workshop will provide participants with the opportunity to develop their understanding of NEA as a diagnostic tool linking numeracy and literacy using video footage of indigenous students undergoing a NEA interview. They will also develop an understanding of how teachers have used NEA as a remediation and general classroom pedagogical strategy for primary and secondary schools.  
*Repeated as G15*

**F18  Star Numbers and Other Investigations with Poly Plug**  
*Workshop*  
*Douglas Williams - Black Douglas Professional Education Services*  
Star Numbers is a visual algebra problem intriguing to students from about Year 4 on to University. Not a bad starting point for a session that will initiate a smorgasbord of problems designed to engage students at all levels in working like a mathematician. You don’t need Poly Plug to investigate all the problems involved in the session or the web resource that supports it, but it sure makes things easier in the classroom. So you might attend this session for the problems, or to consider the value of this particular equipment, or both.  
*Not repeated*
F19 Fun with Fractions
Workshop
Judith Callaghan - University of Canterbury - Education Plus
A hands-on workshop that gives teachers an opportunity to experience a range of innovative practical ideas that will help to broaden and develop student's number sense in fractions.
Repeated as E17

F20 D.I.Y. e Resources on Excel
Lecture
Peter Clerks - St Paul's Anglican Grammar School
Computers provide a powerful learning and teaching tool. Excel is particularly useful for the teaching of mathematics. In this session you will learn how you can create worksheets within Excel that can be geared for practically any level from Grade 1 to Year 12. You will be guided through the creation of a "madminute" worksheet which randomly generates 50 times table questions. The programming of this can then be further applied with your creativity. Note: Bring a computer with Excel (2003 or Better) loaded on it.
Repeated as B14

F21 Developing a Unit of Work on Structure Using an Intensive Coaching Model
Lecture
Peter Sanders - La Trobe University
Christine Powers - Timbarra Primary School
The Berwick South Cluster Numeracy Team are developing exemplar tasks in Structure, trialled using Lesson Study. We are now developing these tasks into units of work. This process has involved an Intensive Coaching Model, whereby teachers can observe tasks and then put them into practice in their own classrooms. This presentation will detail the development of this model in Year 5/6 grades in one of the cluster primary schools and will include examples of the structure lessons.
Repeated as C17

F22 Using Technology to Enhance Problem Solving
Computer Workshop
Paul Negri - Highvale Secondary College
Alan Brookes - Highvale Secondary College
Mathstrack is currently developing new resources for Grade 5 and 6 Students. Examples from the problem solving section will be shown to teachers. A number of problem solving tasks (including some requiring the use of computers) will be explored. Material will be available for teachers to trial in 2010. (Commercial Presentation)
Not repeated

F23 Working Mathematically - Problem Solving
Workshop
Daniel Avano - Scienceworks
Bronwyn Quint - Scienceworks
In this session participants will work through a series of hands-on problems (real-life situations) to test out their problem solving skills. This will be followed by a discussion about practical ways of going about solving problems. Participants will then prepare their own individual problem solving checklist. It's a great way to introduce problem solving in primary or lower secondary school.
Repeated as G17

F24 Working Mathematically: Australasian Problem Solving Mathematical Olympiads Workshop
Workshop
Anne Prescott - APSMO Inc
Jon Phegan - APSMO Inc
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)
Note: Please bring writing materials – but calculators are NOT allowed!
Repeated as E21

F25 Discovering the Unfamiliar in the Familiar - A Story of Natural Numbers
Lecture
David Demant
The book – “A story of natural numbers” has nine characters: the digits 0 through to 9. Our systems of numbers are powerful technology. With the alphabet, they allowed the creation of our modern society. The power of mathematics
is in its use of a few symbols that can stand for ideas and statements that could fill pages if we used everyday language. The book asks the question: what is a number? To understand numbers and their power, we need to understand their history. “A story of natural numbers” opens the door to the world of numbers and of mathematics. (Commercial Presentation – “A story of natural numbers” was written by David Demant and published by black dog books.)

Repeated as G18

F26 Teaching Algebra to Lower Achieving Mathematics Students
Lecture

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

It is generally recognised that algebra is difficult for most students, especially the lower achieving students. In this presentation, strategies of engaging students in learning algebra in the Singapore classrooms are presented. Repeated as C26

F27 Grouping and Strategies for Differentiation of the Mathematics Curriculum Junior Secondary
Lecture

Sue Ditchfield - Monbulk College

This option is a look into using groupings of students for part of your class time to enable differentiation of the Mathematical Curriculum. This includes the use of online programs such as Mathletics and open ended tasks such as those obtained from Maths300. Prior learning is used to assist with groupings which change for each topic. Students are encouraged to be responsible for their own learning and hence create their own individual learning plan. All students are encouraged to extend their learning. Withdrawal enrichment is a feature which also enables targeted support for students who struggle with their Mathematical learning. This is not a Commercial Presentation but will make reference to Commercial programs available, Mathletics & Maths300. Repeated as B21

F28 Exploration of Rich Concrete Task to Consolidate Mathematical Understanding
Workshop

Michelle Moses - Elisabeth Murdoch College

Using rich concrete tasks are important in mathematics because many students are not ready for abstract thinking at secondary school. We can still have good tasks in our classrooms which will facilitate students understanding and thinking. This will also make mathematics fun. Students need to explore, explain reason as well as reflect their mathematical understanding. This will ensure success in conducting rich tasks in our classroom. Scaffolding tasks will ensure that all students will reach the learning outcome set. Repeated as D26

F29 What’s the Angle?
Workshop

Denis Day - Glenvale School
Subra Muniandy - Glenvale School

Tired of having students’ measuring angles from 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 can easily conduct them with their classes. Repeated as G24

F30 Specific Mathematics Assessments that Reveal Thinking: Making Assessment for Learning Practical
Lecture

Kaye Stacey - Melbourne Graduate School of Education
Beth Price - Melbourne Graduate School of Education

Specific Mathematics Assessments that Reveal Thinking, abbreviated to ‘SMART tests’, provide teachers with an easy way of conducting assessment for learning. Through the internet, students undertake a short test that is very strongly focussed on a topic selected by their teacher. Their developmental stages are diagnosed, and sent to the teacher within minutes. Many tests have been produced and are now being trialled in 7 Victorian schools. Where available, on-line teaching resources are linked to each diagnosis, to provide immediate assistance in moving students to the next stage. This project is sponsored by the Australian Research Council and Victoria's DEECD. Not repeated

F31 Hunted, Sourced & Quartered – Finding Quality IWB Maths Activities Without the Hassle
Workshop

Vebica Evans - Pearson Education Australia

Are you a beginner at using an IWB in your Maths classroom? Are you lacking the time to search for resources, interactives and flipcharts and really wish to be given something that you can use right now? This session will explore
what is available online for your IWB and also the “Pearson-Heinemann Maths Zone LiveText for IWB”, a collection of interactives, games, quizzes and tools for the 7-10 mathematics classroom. (Commercial Presentation)

Repeated as B26

F32 Students Use a Video Presentation to Help Their Maths Skills - Our Experiences
Lecture

Geoff Simmonds - Bendigo Senior Secondary College
Kathleen Ireland - Bendigo Senior Secondary College

Students were given an open-ended assignment to prepare a video explaining a mathematical concept of their choice. The task catered for many different learning styles and can be applicable to all age groups. “To teach it, is to learn it”. Did it work? Come along and hear how we organised it, see some examples, and how we assessed it.

Repeated as G29

F33 Smarter Statistics – Don’t Go Down With The Titanic
Lecture

Andrew Stewart - Presbyterian Ladies’ College

The implementation of new technologies – in both calculators and computers – can move the teaching of statistics in Years 7-12 beyond repetitive calculation and display of descriptive statistics. Drawing on resources provided by, and developed during, participation in the STATSMART research project, suggestions are offered for changing statistics teaching and learning.

Repeated as A32

F34 Using Problem Solving to Engage Students in Their Study of Linear Equations
Lecture

Russell James - Fairhills High School

This year Fairhills High School undertook a Teacher Professional Leave project investigating the integration of problem solving activities into the teaching of Year 8/9 linear equations and graphs. The result was a series of investigative and skill development tasks that staff felt were a considerable improvement on the mainly textbook approach used previously. Participants who attend this MAV conference option will be given copies of the activities that were trialled and will have the opportunity to discuss the pedagogical approaches used by the teachers involved in the project.

Repeated as D31

F35 Learning Activities for Middle School Classes Using CAS Technology
Workshop

Jennifer Curtis - St Mark’s Anglican Community School

This hands-on session is designed to provide some ideas for using CAS calculators in the middle school. Through the use of the TI-Nspire CAS software, participants will be able to use CAS technology to work on a number of activities suitable for students in Years 8 to 10.

Note: Calculators will be supplied.

Repeated as C34

F36 Non-Routine Problem Solving Using ‘Geometer’s SketchPad’
Workshop

Karim Noura - Bayside Secondary College

Teachers will share the experience of using more than one strategy to solve non-routine maths problems including the use of technology. In this workshop I will focus on using ‘Geometer’s SketchPad’ to visualise problem solving situations beside the traditional mathematical strategies.

Note: Please bring your own laptop with Geometer’s SketchPad installed if possible (The software will be available to be installed on the day if needed).

Repeated as A34

F37 Reducing Teacher Workload Through the Use of Digital Rubrics
Lecture

Alexander Young - FlickNTick Pty Ltd

It is universally recognised that quality teaching is the most important factor in improving students’ outcomes. This presentation will demonstrate how teachers can rapidly obtain valuable insights through assessment for learning. These insights give vital knowledge of students’ abilities and identify gaps in learning not observable under conventional assessment. I will show how teachers can automatically assess written, multiple choice and practical work. This new technique, using digital rubrics, saves teachers’ considerable time. You will see how to mark a class of 30 students in less than two minutes and obtain exceptionally powerful feedback to help improve your teaching effectiveness. (Commercial Presentation)

Not repeated
eActivities on the Casio ClassPad

Rohan Barry - Wodonga High School

eActivities can be a useful teaching and assessment tool. Learn how to construct them and try some that have been used in the classroom.

Note: A Casio ClassPad will be provided for the session but feel free to bring your own.

Repeated as E34

Introducing CAS (TI-Nspire): Year 10 Circle Geometry

Rita Visser - Luther College
Ian Edwards - Luther College
John Buruma - Luther College

This session is aimed at teachers who have little or no knowledge of CAS calculators. The session will begin with a brief discussion on the rationale for this particular unit of work. After the discussion participants will work through the unit of work trialled at Luther College in year 10. The CAS activities embedded in this unit of work involve geometric constructions and measurements using TI-Nspire Geometry. Participants will receive an electronic copy of materials used.

Note: Calculators will be provided to participants.
Not repeated

Geometer’s Sketchpad in Year 10 Mathematics Classroom

Bozenna Graham - Wesley College

The presenter will demonstrate how dynamic geometry can be used in a mathematics classroom to enhance students’ understanding by allowing independent discovery learning. Sample activities will be presented on circle geometry, measurement, trigonometry and transformations.

Not repeated

Problem Solving with the TI-Nspire CAS Calculator

Pauline Holland - Jacaranda (John Wiley & Sons)
Shirly Griffith - Jacaranda (John Wiley & Sons)

This will be a workshop on using the TI-Nspire calculator to solve problems; algebraically and graphically. The level of Mathematics will be towards the senior end of secondary education as some calculus would be expected. It will showcase the efficient and effective ways that a CAS calculator could be used to solve a selected number of worded problems of varying degrees of difficulty. The participants will be given a handout with the problems and solutions including the relevant screen dumps from the TI-Nspire calculator. The emphasis will be on using the calculator and is suitable for beginner users and those with some experience. (Commercial Presentation)

Note: If you have a TI-Nspire CAS calculator please bring it to this session.
Repeated as E39

EMPower – New Approaches to Numeracy for VCAL and Adult Students

Beth Marr - Private Consultant

This workshop will look at new practical and contextualised approaches to fractions, decimals and percentages. It will be based on the activity-based strategies offered by the new resource for adults and applied learning students (eg VCAL learners) - ‘EMPower: Giving maths a second chance. The workshop will focus on a ‘benchmark’ fraction approach which allows students to ‘get a feel for’ the most commonly known fractions and their equivalents and to use them as a point of comparison for other fractions and a jumping off point for calculating other percentages.

(Commercial Presentation)

Not repeated

Virtual Learning Network - Maths Methods Online

Kyle Staggard - Bendigo Senior Secondary College
Anne Grealy - Bendigo Senior Secondary College

The Virtual Learning Network is an exciting project initiated by Bendigo Senior Secondary College and aims to deliver VCE subjects entirely online. The details of the project, including the structure and organisation, the methods used to develop materials and the results of initial trials will be discussed during the workshop. Participants will have the opportunity to explore the learning materials available to students through the Virtual Learning Network site.

Repeated as E40
F44 Pitfalls and Hurdles in Past Further Mathematics Examinations  
**Lecture**  
*Rob Vermay - St Paul's Anglican Grammar School*  
Examination questions often throw up a number of stumbling blocks for many students. This session will explore the common errors and issues evident in student responses to a range of Further Mathematics examination questions selected from the years 2000-2008. Areas of apparent confusion from the Core and all modules will be discussed as will calculator use and misuse. Applicants should note that this session will NOT address any questions or issues arising from the 2009 examinations.  
*Not repeated*

F45 Counter-Examples in Probability and Statistics  
**Lecture**  
*John Kermond - Haileybury College Senior Campus*  
A counter-example is an example that is used to disprove a statement or conjecture. In this session several incorrect beliefs commonly held by students (and perhaps some teachers) in probability and statistics are presented. Simple counter-examples that disprove these beliefs are provided and discussed in detail. Ideas suitable for use in Unit 4 Mathematical Methods Analysis Task 2 will be specifically highlighted.  
*Repeated as B42*

**SESSION F-G: 10:45am - 1:00pm Friday 4th December (Extended Session)**

F-G1 Using Pedagogical Tools to Enhance Number Intervention P-4  
**Lecture**  
*Gerard Lewis - Catholic Education Office*  
*Andrea Dineen - St Peter Julian Eymard School*  
The Catholic Education Office Melbourne in partnership with Dr Bob Wright is developing a P-4 Number Intervention program. We will present some of the pedagogical tools that have been developed as part of this program which have enhanced the learning of low attaining students at two distinct levels P-2 and Years 3-4. The use of engaging teaching structures in an Intervention program will be explored.  
*Not repeated*

F-G2 Making Sure You Get Off to a Great Start in Maths in 2010  
**Lecture**  
*Rob Vingerhoets - RVEC*  
This presentation will help you get off to an effective start in your maths teaching for 2010. The session will focus on getting Term 1 right in terms of planning, implementing an effective lesson structure and will highlight some very worthwhile activities for place value and mental computation.  
*Not repeated*

F-G3 Improving Student Learning in Mathematics Through the Explicit Teaching of Language  
**Lecture**  
*Joanne Riddell - Catholic Education Office*  
*Jackie Vella - Catholic Education Office*  
*Michele Coupland - Catholic Education Office*  
In order to be successful at Mathematics students need to have a sound understanding of the Language of Mathematics. Through the explicit teaching of mathematical language students are given a greater chance of success. This presentation outlines ways in which teachers can explicitly teach the language of mathematics in the classroom.  
*Repeated as A-B2*

F-G4 Numeracy in Practice: What Does it Mean For Your School?  
**Lecture**  
*Catherine Pearn - University of Melbourne*  
*Max Stephens - University of Melbourne*  
*Dianne Siemon - RMIT University*  
Numeracy in practice: teaching, learning and using mathematics (DEECD Paper 18, June 2009) looks at key issues such as effective teaching, differentiating support to improve student learning, and purposes of assessment. How can schools use this document to develop school-wide policies and to improve mathematics teaching and learning, and achieving better outcomes in numeracy? This session will elaborate practical advice for school leaders and teachers, along with several case studies of what some successful schools are doing.  
*Not repeated*
F-G5  Kids Teaching Kids via Tablet PC, Moodle and Student-Created Screencasts
Lecture

Eric Marcos - Lincoln Middle School, USA
Tony Richards - IT Made Simple

This session focuses on the positive effects of adopting a ‘kids teaching kids’ model and screencasting. This collaborative model helped spark student interest and enthusiasm inside and outside of the math class. Our model consists of a tablet PC, class websites and student-created math video lessons (mathcasts). The videos are shared in class and on-line at Mathtrain.TV, Mathtrain.com, YouTube, TeacherTube, and our iTunes podcast. Participants will view an actual live demo of a student-created mathcast, learn how they can be used as tutoring tools and forms of authentic assessment and discover how easy it is to create them themselves.

Note: Live broadcast via the Internet, with Eric Marcos and Students in the USA and Tony Richards on-site in Australia.

Repeated as A-B3

F-G6  ‘Putting a Spotlight on Division’
Workshop

Erin Hooper - Cornwall Park District School
Rose Golds - Team Solutions, University of Auckland
Heather Lewis - Team Solutions, University of Auckland

As part of our work as mathematics advisors we have identified that developing strategies for successfully working with division is an area of weakness for both students and teachers. Our workshop offers some ideas and activities which we have successfully trialled in classrooms (Years 5-8). We will explore and analyse examples of students’ thinking, indicating how this can be used formatively as a basis for the next learning steps with division.

Repeated as A-B4

F-G7  Paper Geometry vs Orange Geometry - Hands-On
Workshop

István Lénárt - Eötvös Loránd University

In this hands-on version of my keynote, participants will compare and contrast basic concepts of plane geometry with those of spherical geometry. Using oranges and special hands-on tools for construction on the sphere, we can ask questions which seem simple at first sight: What is a straight line? What are parallels or perpendiculars? What is a circle or a triangle? What is Pythagoras’ Theorem all about? Students can better understand the meaning and significance of geometric concepts when they apply them to different surfaces, to different worlds of geometry, and connect these with subjects such as geography, astronomy and art.

Not repeated

F-G8  Having Some Fun With Numeracy and Maths
Workshop

Dave Tout - Australian Council for Educational Research (ACER)

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.

Repeated as A-B5

F-G9  Fruit Sausages
Workshop

Anthony Harradine - Prince Alfred College

What does a 85 gram block of chocolate weigh? Things are often not what they seem. Such is the case of manufacturing objects by weight. Come and play in my factory. You get to make fruit sausages and see how accurate you can be. You then get to make sense of the data you and others produce. Being immersed in the process that births the data that you are asked to make sense of, provides the most authentic data-learning activities possible.

Not repeated

F-G10  Bezier Curves: Integrating Number, Geometry and Algebra
Workshop

Stephen Arnold - Compass Learning Technologies

Most of the curves you see on a computer screen or printed page - everything from text fonts to animations - are generated mathematically using Bezier Curves. This topic offers wonderful opportunities for integration across the secondary years, from string art to parametric equations, from recursion to conics, where the geometry and algebra work together to support student understanding.

Note: Please bring a laptop along, preferably with TI-Nspire software installed. Trial copies will be available for
installation prior to the presentation from the TI stand. TI-Nspire handhelds will be available at the presentation, but a laptop is preferable for this activity.

Repeated as C-D6

F-G11  A New Approach To The Conics
Lecture  
Hussein Tahir
In this seminar we look at a new approach for the teaching of the conics, and demonstrate a new method in which conics are used as tools in problem solving. This is a follow up of the seminar run last year. Although some of the illustrations given last year will be repeated, the focus will be on the Central Conics. The strategies and methods discussed are also applicable to the Parabola. Technology is an integral part of this approach and Dynamic Mathematics programs, algebraic and graphics calculators can be used extensively.

Repeated as C-D7

F-G12  TI-Nspire CAS at the Distance Education Centre Victoria
Workshop  
Neale Woods - Distance Education Centre Victoria
Mathematics staff at the Distance Education Centre Victoria (DECV) have written a wealth of TI-Nspire CAS calculator material for their Year 10 to 12 courses over the last few years. In this workshop, participants will have a hands-on opportunity to trial a wide range of this course material. TI-Nspire CAS calculators will be provided.

Note: Participants are encouraged to bring their own TI-nspire CAS calculator to this session.

Not repeated

F-G13  Where am I on the CAS Continuum?
Lecture  
Peter Fox - Elisabeth Murdoch College
Frank Moya - Frankston High School
Participants in this session will work through a selection of activities that range from procedural through to investigative. The procedural activities use technology to reinforce traditional mathematical skills. Investigative activities encourage higher order thinking skills to reinforce conceptual development. The activities provided in this session have been developed by Peter Fox and Frank Moya through Teacher Professional Leave (30 days) where the activities have been tried and tested in classrooms consisting of students and teachers with a range of CAS experience.

Repeated as C-D8

F-G14  Statistics Workshop for the TI-Nspire Handheld
Workshop  
Peter Jones - Swinburne University
This session complements the presentation ‘Statistics and the TI-Nspire: an overview’. In this workshop, participants will gain hands-on experience using the TI-Nspire handheld to conduct univariate data analysis, investigate relationships and perform regression analysis, including the use of data transformation.

Repeated as C-D10

SESSION G: 12:00pm - 1:00pm Friday 4th December

GK1  The Australian Mathematics Curriculum and Resources
Keynote  
Sue Ferguson - Curriculum Corporation
The Australian Mathematics Curriculum will be implemented in schools from 2011. This keynote will outline the timeline and process for developing the curriculum and identify key features of the P-10 curriculum and the Year 11 and 12 courses. The publication of the curriculum and some of the resources available to assist in its implementation will be discussed. There may also be an opportunity to respond to draft extracts.

Sue Ferguson is Senior Project Officer, Curriculum with the Australian Curriculum, Assessment and Reporting Authority with responsibility for managing the development of the Australian National Curriculum. Previously she was Manager Strategic Communication, The Le@rning Federation for Curriculum Corporation. Sue has been a secondary school teacher and a sessional lecturer at Victoria University working with pre-service teachers in mathematics education. Sue’s major interests in education include curriculum development and the potential of digital content to enhance learning.
GK2  Mind Your Language: Speaking In and About the Mathematics Classroom
Keynote

**David Clarke - University of Melbourne**

This keynote presentation has two distinct sections. First, research is reported into the role of spoken mathematics in mathematics classrooms in six different countries. The focus is frequency of public and private talk by students and the extent to which this talk makes use of the language of mathematics. Some classrooms around the world deliberately aim to develop student use of spoken mathematics and some do not. How is this done and what difference does this appear to make for student learning and student ability to 'speak mathematics'? Second, mathematics teachers in different countries (particularly non-English speaking countries) employ different professional vocabularies to describe what they do and what occurs in their classrooms. Many of the terms, such as 'mise en commun' (French), 'Kikan Shido' (Japanese) and 'jianping' (Chinese), routinely used in the local language, have no direct equivalent in English. Mathematics teachers in these countries routinely refer to classroom activities for which we have no name. If you can name an activity then you can both recognise it and seek to improve it. Without the name it is difficult to do either. Students or Teachers: How important is it to be able to talk about what we do?

**Professor David Clarke** is Director of the International Centre for Classroom Research at the University of Melbourne. He has undertaken research into mathematics assessment, teacher professional growth, and the practices of mathematics classrooms internationally. Among other projects, he coordinates an international study of mathematics classrooms in sixteen countries (The Learner’s Perspective Study). He has published widely. Current interests include multi-theoretic research designs, the cultural situatedness of theory construction the challenge of research synthesis, and the problem of how research might best inform classroom practice. Perhaps most importantly, Professor Clarke taught secondary mathematics and physics for eight years – which probably accounts for his lasting interest in classroom learning and teaching.

GK3  Developing Numeracy Using a Critical Citizen’s Platform - A Prime Importance!
Keynote

**Shane O’Connor - Consumer Affairs Victoria**

**Roslyn Mullins - Consumer Affairs Victoria**

A key role of Mathematics is that it ‘...has a fundamental role in enabling cultural, social and technological advances, and empowering individuals as critical citizens in contemporary society and for the future...’ (Victorian Essential Learning Standards, Introduction to Mathematics, VCAA). Building our students to be critical citizens entails empowering them and by developing them as independent, informed and in-control learners. The benefits of concurrently developing numeracy skills and your students as critical citizens are far reaching. In this case the saying “…the whole is greater than the sum of the parts” is most appropriate! This presentation focuses on how to provide engaging and relevant numeracy activities for your students by using key social and economic issues as the learning context. The presentation will focus on the linkage between key numeracy skills and the current need for young people to develop greater financial and consumer literacy. The impact of the current global financial crisis ensures the relevancy of such a linkage. The interconnection between developing numeracy skills and the need for young people to be more aware of the ever-increasing popularity of gambling will also be examined.

**Shane O’Connor and Roslyn Mullins** lead Consumer Affairs Victoria’s popular Consumer Education in Schools (CEIS) program. Shane brings 25 years of secondary school experience and three years of CEIS experience to his current position. Roslyn is a former member of the VCAL Unit at the Victorian Curriculum and Assessment Authority. She brings a wealth of knowledge about Victorian secondary curriculum to her position in the CEIS program. This program is continuing to develop and distribute new resources linked to VELS with a particular focus on numeracy skill development.

G4  Early Number Sense
Workshop

**Vivienne Belcher - University of Canterbury - Education Plus**

**Elizabeth Johnson - University of Canterbury - Education Plus**

This workshop will focus on Stages 1-3 of the Grouping/Place Value domain of The New Zealand Number Framework, Book 1, Numeracy Development Project. Participants will be invited to participate in activities relevant to young children’s number sense development and their later construction of place value understanding. The workshop leader will provide a handout of activities that support this development.

*Repeated as F3*
G5  Working Mathematically with Infants  
Workshop  
Douglas Williams - Black Douglas Professional Education Services  
Years: Prep - 2  
Derived from Calculating Changes, enriched by the Task Centre and Maths300 and integrated with Maths With Attitude this new resource supports K-2 teachers to build their curriculum around the concept that all students can learn to work like a mathematician in best practice classrooms. The workshop will introduce you to the kit through activity, expose its simple and flexible framework, which includes a week by week planner, and highlight teaching craft features such as threading and investigations which captivate students. (To the degree that you consider the projects listed to be commercial, this could be interpreted as a commercial presentation.)  
Not repeated

G6  Number Sense in the Early Years  
Workshop  
Sharyn Livy - The Mathematical Association of Victoria  
Years: Prep - 4  
During the early years children should be encouraged to develop number sense. How can we encourage students to make sense of numerical situations? This workshop will provide a range of activities to use within your early years classroom for use with small groups and as a whole class.  
Note: You are welcome to bring a resource you use in your classroom to share with the group, big or small!  
Repeated as H3

G7  Using a Calculator Effectively in the Primary Classroom  
Workshop  
Linda Baron - Chirnside Park Primary School  
Mary Burns - Chirnside Park Primary School  
Years: Prep - 5  
Why use calculators? How can they be used effectively in the classroom? Is order important? What games can you play to get children thinking? When should calculators be used? These and more questions will be answered as we work our way through an informative and fun session on the effective use of calculators in the classroom where we will explore understandings through a variety of games and simple exercises.  
Note: Please note that calculators will be supplied for this session.  
Repeated as H5

G8  Making Maths the Highlight of the Week  
Workshop  
Sarah Macdonald - Moomba Park Primary School  
Years: Prep - 6  
This session will cover ways to excite students about Maths through the use of a range of lesson structures to vary teaching and learning. It will look at the benefit of implementing different models for maths sessions during the week and the positives of each of these models for both teachers and students. Participants will take part in model sessions and take away ideas and activities tried and tested in today's classroom. Most of all, it will ensure excellent school attendance, even on Fridays!  
Repeated as H6

G9  SAM-pling Something New  
Lecture  
Loretta Weedon - Catholic Education Office  
Jan Walker - Catholic Education Office  
Helen McClelland - St Anthony’s School Glen Huntly  
Years: Prep - 6  
As part of a whole school initiative to improve the teaching and learning of mathematics in Catholic primary schools, the Catholic Education Office Melbourne (CEOM) in partnership with Australian Catholic University (ACU), developed a professional learning program. A number of School Adviser Mathematics (SAMs) were employed to mentor classroom teachers with the goal of improving mathematical pedagogical content knowledge (MPCK) and student outcomes. This presentation will focus on the challenges and successes of the initiative from three perspectives: the Program Coordinator, the School Adviser Mathematics (SAM) and a Classroom teacher.  
Repeated as H7

G10  Differentiating the Curriculum  
Workshop  
Kim Kirkpatrick - Kennington Primary School  
Sherilyn Butler - Kennington Primary School  
Years: Prep - 6  
In every classroom there are a variety of ability levels. Children often like to be doing the same activities as others not a ‘special’ program. Kim and Sherilyn will show you how they teach children at their point of need using the same activities with a different focus. Hands-on activities.  
Note: Bring a USB if you would like to collect information.  
Repeated as H8
G11  Software for Primary School
Computer Workshop  Years: Prep - 6

Tony Collison - School Software
A chance to play in the sand box with software for students from K-6. A range of software from shareware or free sources to commercial titles from School House Technology and Grey Gum including the new Maths Circus 6. (Commercial Presentation)

Replaced as F6

G12  The Mixer-upper-er: A Systematic Way to Group Students

Workshop  Years: Prep - 12

Peter Cox - La Trobe University
How do you solve the age-old problem of grouping your students so that they work with different people? The Mixer-upper-er is a new way to achieve this! It enables teachers to systematically mix students so that, over a series of groupings, every student in a class works with every other student in the class once. In this session participants will experience and learn how to use the Mixer-upper-er. This session will also report on the trial of this tool and share the beauty of the mathematics behind it. The trial was conducted in primary, secondary and tertiary classrooms. (Although this tool is now available commercially as a poster, this is a non-commercial presentation).

Replaced as H13

G13  Students’ Transition Between Contexts of Mathematical Practices in Ghana

Lecture  Years: 1 - 6

Ernest Kofi Davis - Monash University
Wee Tiong Seah - Monash University
Alan Bishop - Monash University
Mathematics is a subject that appears to be studied in school curriculum all over the world. However, whilst in some societies mathematical practices reflects the mathematics that is studied in schools, in other societies some of the mathematical practices in the society differ from those in schools. This paper reports on some of students’ transition experiences in mathematics in Ghana, where some of the mathematical practices in the society differ from school. It also discusses the effect of some of these transition experiences on students’ mathematical conceptions in fractions, and their implications for mathematics pedagogy in multicultural societies such as Australia.

Replaced as F11

G14  Unreal Footy = Real Learning + Unreal Fun

Lecture  Years: 3 - 10

Phill Cristofaro - Brunswick East Primary School
Unreal Footy is much more than just fantasy football. It’s an online virtual learning environment specifically designed for primary and secondary schools and uses the mathematics of sport to teach students skills in calculation, prediction, chance and data, problem solving and communication. Unlike other fantasy football programs, students have to make calculations manually and use real life data week-to-week to develop their Maths, English and ICT skills. Unreal Footy supports open-ended problem based learning and facilitates communication through online forums. Teachers and students customise the program collaboratively to suit their needs and draw on higher order thinking skills to develop the program.

Note: Bring your (fully charged) laptop.

Replaced as A14

G15  A Revaluation of Newman’s Error Analysis

Lecture  Years: 3 - 10

Allan White - University of Sydney
Newman defined five specific reading skills as crucial to performance on mathematical word problems: reading, comprehension, transformation, process skills, and encoding. Newman’s Error Analysis (NEA) has experienced a reawakening in New South Wales and has been included in a number of programs such as the Counting On programs. This workshop will provide participants with the opportunity to develop their understanding of NEA as a diagnostic tool linking numeracy and literacy using video footage of indigenous students undergoing a NEA interview. They will also develop an understanding of how teachers have used NEA as a remediation and general classroom pedagogical strategy for primary and secondary schools.

Replaced as F17

G16  Why Some Groups Work and Some Do Not

Workshop  Years: 4 - 10

Gaye Williams - Deakin University
This session will stimulate discussion of possible purposes of group work, and group compositions that serve these purposes. Gaye will then share her research findings about the ways groups did or did not work together to try to solve unfamiliar mathematical problems. She will discuss the characteristics of groups that did engage in exploring
new mathematical ideas, and characteristics of groups that did not. The session will end with participants reflecting on how they might use ideas arising from this session in group work they undertake in the future.

Not repeated

G17 Working Mathematically – Problem Solving Workshop

Daniel Avano - Scienceworks
Bronwyn Quint - Scienceworks

In this session participants will work through a series of hands-on problems (real-life situations) to test out their problem solving skills. This will be followed by a discussion about practical ways of going about solving problems. Participants will then prepare their own individual problem solving checklist. It’s a great way to introduce problem solving in primary or lower secondary school.

Repeated as F23

G18 Discovering the Unfamiliar in the Familiar - A Story of Natural Numbers Lecture

David Demant

The book – "A story of natural numbers" has nine characters: the digits 0 through to 9. Our systems of numbers are powerful technology. With the alphabet, they allowed the creation of our modern society. The power of mathematics is in its use of a few symbols that can stand for ideas and statements that could fill pages if we used everyday language. The book asks the question: what is a number? To understand numbers and their power, we need to understand their history. "A story of natural numbers" opens the door to the world of numbers and of mathematics.

(Commercial Presentation – “A story of natural numbers” was written by David Demant and published by black dog books.)

Repeated as F25

G19 Reciprocal Teaching in Maths Lecture

Yvonne Reilly - Sunshine College
Jodie Parsons - Sunshine College
Liz Bortolot - Sunshine College

Reciprocal Teaching in Maths, a learning strategy that builds problem solving skills and improves mathematical literacy for students.

Repeated as C22

G20 Activities that Promote Thought and Discussion Workshop

Janine Angove - HOTmaths

Explore open tasks and practical activities can be used in the classroom, with and without technology. Participants will receive a variety of tasks and ideas about how to incorporate working mathematically into their programs. These tasks are all available through HOTmaths.com.au, which provides a multimedia approach to learning and teaching mathematics, including hundreds of printable activities and interactive investigations. (Commercial Presentation)

Not repeated

G21 Establishing a Learning Journey for Year 7 Mathematics Students Workshop

Ian Edwards - Luther College

Year 7 students have a diverse range of learning backgrounds and styles. Establishing a productive and rewarding pathway for the development of mathematics is essential. The workshop will examine ways ICT and other activities can be integrated into the curriculum areas. How to foster the talent of all students while adding to their mathematical tools and skills.

Not repeated

G22 MATERial Girls: A Cultural Change, Testing for and of Learning Lecture

Valerie Everist - Catholic Education Office
Deborah Gould - Mater Christi College

The Catholic Education Office Melbourne (CEOM) in partnership with University of Melbourne developed a professional learning program aimed at improving student mathematical learning outcomes through improved mathematical pedagogical content knowledge (MPCK) of teachers. This session will focus on the major components of the initiative needed to affect change from both the CEOM perspective and a participating Secondary Catholic Girls’ College. It will focus on the development of professional learning teams to discuss strategies, resources and assessment tasks aimed at improving the learning culture within the classroom. Each of these will be discussed in
relation to teaching percentages at Year 8.

Not repeated

G23 Using Maps
Workshop
Ruth Goddard - CAE, Glenroy Neighbourhood Learning Centre
Map activities used in classes for adults and young adults in a community setting. 
Repeated as H27

G24 What's the Angle?
Workshop
Denis Day - Glenvale School
Subra Muniandy - Glenvale School
Tired of having students' measuring angles from 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 can easily conduct them with their classes. 
Repeated as F29

G25 Problem Solving for Able Students
Workshop
Derek Holton - University of Melbourne
Problems from many years experience will be presented along with a discussion of why do problem solving and why do it with able students. This will be a hands-on workshop and participants will be expected to bring with them pens, paper and enthusiasm. 
Repeated as D28

G26 From Conceptual Understanding to Fluency in Algebra; A Program Utilising Instructional Games
Workshop
Jane Irvin - Morayfield State High School
Participants will be shown a program of instruction the presenter has used successfully in her classes. The session will focus on how to sequence lessons incorporating instructional games, materials, activities and language so the students can meaningfully gain an understanding of the concepts that underpin Algebra. Differentiated instruction and assessment will also be discussed as these allow students to engage from where they are at in their learning and then progress to fluency. 
Repeated as H28

G27 Interactive Maths Series Software Training (Computer Workshop)
Computer Workshop
Paul Rehill - mathsteacher.com.au
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 1222 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 1222 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 D30

G28 Arithmetika-Cheetah: e-Learning and e-Assessment Workshop!
Computer Workshop
Tony Allan - Daramalan College Canberra
Formal Electronic Assessment has now come of age. Arithmetika's Assessment Manager gives schools their first real opportunity to replace a significant proportion of traditional paper-based assessment with e-assessment. Will save you hours of marking! You can also review Arithmetika's Mathematics Curriculum Packs, which allow schools to deliver the opportunity to practice and revise almost anything on the high-school curriculum, with instant feedback for the students and countless hours of marking done for you. This is a hands-on workshop. (Commercial Presentation) 
Repeated as C32
G29  Students Use a Video Presentation to Help Their Maths Skills - Our Experiences
Lecture
Geoff Simmonds - Bendigo Senior Secondary College
Kathleen Ireland - Bendigo Senior Secondary College
Students were given an open-ended assignment to prepare a video explaining a mathematical concept of their choice. The task catered for many different learning styles and can be applicable to all age groups. “To teach it, is to learn it”. Did it work? Come along and hear how we organised it, see some examples, and how we assessed it.
Repeated as F32

G30  Casio ClassPad 101
Workshop
Elena Zema - Prince Alfred College
Learn the basic introductory skills to operate the Casio ClassPad. Free and useful resources will be available, that will convert you from beginner into a fluent ClassPadder in no time! This workshop is for first time users or if you just need to freshen up those skills.
Note: Bring your ClassPad or use a loan machine.
Repeated as H35

G31  Real Numbers
Computer Workshop
David Leigh-Lancaster - Victorian Curriculum & Assessment Authority (VCAA)
The real numbers and related operations form an interesting mathematical structure, however most students and many teachers will have worked mainly with the rational real numbers, and the occasional irrational real number in measurement and function contexts. In this session we take a more in-depth look at real numbers and their representations and properties, using the CAS Mathematica as a tool to support these investigations.
Note: While familiarity with Mathematica is not assumed, participants should be comfortable working with mathematical software or similar in a windows based environment.
Repeated as B28

G32  Pedagogical Gains from Wireless Networking TI-Nspires
Workshop
Ray Williams - St Mark’s Anglican Community School
This workshop provides participants with an opportunity to experience the interactive capacity of the wireless connection of TI-Nspire devices to the teacher’s computer in the classroom. The system allows for quality feedback from students as well as for the collection and dissemination of materials, concepts and information within the classroom. The ability to place a student in the role of ‘teacher’ provides a most useful degree of freedom for the teacher and results in immense pedagogical gains in the classroom.
Repeated as H34

G33  Year 9 Enriched
Workshop
Rennae Miszkurha - Caulfield Grammar School
Lisa Saffin - Caulfield Grammar School
This is a resource and hands-on activity session focussing on engaging and motivating Year 9 students to develop deeper mathematical thinking. Both CAS and non-CAS activities will be included.
Note: Please bring a CAS calculator. (No calculators will be provided for participants).
Repeated as D33

G34  Teaching Surds with Technology: Exploring, Explaining, Generalising
Lecture
Roger Wander - University of Melbourne
Michael Lane - Caroline Chisholm Catholic College
Teaching surds can often be tedious if the usual textbook formats are followed. In this presentation, technology (TI-Nspire CAS) is used to explore the various patterns generated by a spiral of right-angled triangles. We will share the experience of using ‘lesson study’ to develop lessons and create professional learning opportunities for teachers within a mathematics faculty.
Note: Paper documentation of the lesson will be provided. At the conclusion of the presentation, participants will be given website information for accessing all relevant files for their use.
Repeated as H37
G35 The Great Rat Race
Workshop
Brett Stephenson - Guilford Young College
The Great Rat Race is an analysis of the motion of 3 rodents in a race to a finish line 10m away. Using technology the distance, velocity and acceleration can be examined using several menus on a graphics calculator. Stationary points and intersection points are also possible with this student centred task.

Note: Please bring a graphic calculator with you if you have one. Casio ClassPads will be available otherwise.
Repeated as H38

G36 Using Interactive and Online Technologies to Support Student Learning
Workshop
Sarah Day - Kambrya College
This session will be a hands-on look at a range of classroom based technologies that can be used to support student thinking in the classroom and beyond.
Repeated as H39

G37 The Mathematical Footy Show (Rugby Edition)
Lecture
Marty Ross
Burkard Polster - Monash University
A sporty hook is invaluable for the selling of mathematics to rambunctious boys. One fairly well known hook is the taking of conversion kicks in rugby: the problem is to determine how far from the goal line to take the kick. Recently, we took a closer look at this problem, which turns out to be more interesting and trickier than is generally realised.
In this talk, we'll discuss various approaches to the conversion problem. We'll describe some of the beautiful school-level mathematics used to analyse the problem, and (you heard it here first) our resorting to "technology" when need be. We'll also talk about our discussions with players and coaches from the Melbourne Storm, and we'll compare our mathematical conclusions to the real world of rugby kicking.
Not repeated

G38 Sliders on the TI-Nspire CAS
Computer Workshop
Russell Brown - Educational Consultant
Many students find visual representations the key to understanding new concepts. Using sliders and spinners to change parameters have been used in many computer applications to maximise this visual approach. This hands-on session will look at creating simple sliders to explore examples such as changing the value of a, b & c on quadratic functions and p in a binomial distribution plot. See the results 'live' as you move the slider to change the parameter values. The content and technique is also relevant to the TI-Nspire CAS handheld.
Not repeated

G39 Transformations with Technology
Lecture
Susan Sanders - Our Lady of Mercy College
Frank Van Den Boom - Our Lady of Mercy College
Robyn Pierce - University of Ballarat
This session will outline the use of technology (demonstrated with TI-Nspire) to allow students to explore aspects of transformations at the Year 10 level. This task uses dynamic geometry to investigate translations and reflections of geometric shapes and then extends to linear and quadratic functions.
Not repeated

G40 Geometer's Sketchpad - Surd is the Word
Computer Workshop
Hayden McQueenie - Red Cliffs Secondary College
Ian Rowland - Red Cliffs Secondary College
Lloyd Stagg - Red Cliffs Secondary College
Geometer’s Sketchpad is an interactive, dynamic geometry software package. This workshop, aimed for beginners, will give a hands-on, basic introduction to GSP. We will then show how GSP can be used to supplement the teaching of surds from a geometric perspective, rather than purely numerical. No previous experience using Geometer’s Sketchpad is necessary.
Repeated as H41
G41 Using Land Surveying for General Maths 1 & 2 and Further Maths 3 & 4
Lecture
Rob Daniel - Caulfield Grammar School
The geometry and trigonometry aspects of both the General Maths 1 & 2 and Further Maths 3 & 4 courses can be covered using survey techniques both theoretically and practically. Offset surveys, radial surveys and triangulation provide avenues for the full range of trigometric applications as well as mensuration opportunities. Practical exercises can be arranged for either formal or informal assessments and a variety of locations where such exercises could be carried out will be presented.

Repeated as H42

G42 Exploring Sunrise and Sunset Data with TI-Nspire
Workshop
Neville Windsor - Hellyer College
Participants in this hands-on workshop will use TI-Nspire calculators to investigate sunrise and sunset data. Prior experience with the calculators is not necessary.

Repeated as H43

G43 Taking Real Data Further Mathematically
Computer Workshop
Andrew Stewart - Presbyterian Ladies' College
Rachel Buczuhazy - Australian Bureau of Statistics
CensusAtSchool is a rich resource of raw data freely available for students to use. Random samples of data from the huge CensusAtSchool database can be used in univariate or bivariate statistical investigations at VCE level using Excel® spreadsheets or calculators such as the TI-Nspire®. This workshop will show some of what is available from within the project as well as providing hints to other activities. The workshop will provide you with some take-home examples that will enable you to get started using CensusAtSchool data with your students. (Commercial Presentation)

Repeated as H45

SESSION H: 2:00pm - 3:00pm Friday 4th December

HK1 How to Become a Human Lightning Calculator
Keynote
Burkard Polster - Monash University
Throughout history there have been some extraordinary people, performing incredible feats of mental mathematics: multiplying six digit numbers; winning fifty simultaneous games of blindfold chess; instantly declaring the day of the week of historical events; and much more. Come and learn some of the best-kept secrets of these calculating magicians, and learn what it takes to become one yourself.

Burkard Polster is Monash University's mathematical juggler, origami expert, bubble-master, shoelace charmer, and Count von Count impersonator. He is the author of a number of books, including The Mathematics of Juggling, Q.E.D: Beauty in Mathematical Proof, The Shoelace Book and Eye Twisters (a book on ambigrams). When Burkard is not playing with mathematics he has fun investigating perfect mathematical universes and turning his uni students into maths demons. Burkard and his colleague Marty Ross are Victoria's tag team of mathematics. They write the Maths Masters column for the Melbourne Age and the Sydney Morning Herald. For many years they have been delivering the mathematics lecture series at the Melbourne Museum, visiting schools and touring the country with their Mathematical Mystery Tour.

HK2 Algebraic Thinking: Generalising Number and Geometry to Express Patterns and Properties Succinctly
Keynote
George Booker - Griffith University
While algebra has largely been viewed as a formal system met in high school, recent curriculum directions have focussed on the thinking that underpins these ways of operating, recognising that this needs to develop from the earliest days of school. Thus, Algebraic Thinking addresses general mathematical relationships, expressing them in increasingly sophisticated ways as activities move from seeing patterns in number, geometry and measurement to determining solutions to more and more complex problems. Emerging ideas shown with materials, models, tables and patterns of objects lead to verbal descriptions that gradually move from a discussion of what is seen to an ability to describe this in more mathematical terms, using additive, then multiplicative,
reasoning. Any formal notation can only be introduced when students are ready and there is a need for succinct expressions of the relationships that are revealed. In this way, a basis can be laid for the use of symbols that express generalities concisely and carry meaning independently of the activities with which they were established. This parallels the historical development of algebra, allowing mathematical relationships rather than mathematical objects to come to the fore and provide a tool for dealing with the complexities of today’s world.

George Booker is Senior Lecturer in Mathematics Education at Griffith University where he teaches primary and special education students, and conducts research and development of practice in the learning of mathematics with a particular emphasis on the relationship of language to the development of concepts, processes and ways of thinking. His publications include Teaching Primary Mathematics, a resource book for teachers, the Booker Profiles in Mathematics, a series of diagnostic mathematics assessments, The Maths Game: using instructional games to teach mathematics as well as Win with Maths! CD-Roms for early years and middle years. A series of problem solving books for teachers and their students Years 1 – 7+, co-authored by Denise Bond, were published in 2008 by RIC publications.

H3 Number Sense in the Early Years
Workshop
Sharyn Livy - The Mathematical Association of Victoria

During the early years children should be encouraged to develop number sense. How can we encourage students to make sense of numerical situations? This workshop will provide a range of activities to use within your early years classroom for use with small groups and as a whole class.

Note: You are welcome to bring a resource you use in your classroom to share with the group, big or small!
Repeate as G6

H4 Developing Early Place Value Understanding
Workshop
Charlotte Rawcliffe - Team Solutions, University of Auckland
Alison Howard - Team Solutions, University of Auckland

This workshop will be a hands-on approach to exploring some of the key aspects in relation to early place value understanding. The importance of equipment will be explored as well as a range of activities to scaffold students place value development. Participants will also be encouraged to share place value activities that they have used effectively in their classroom programmes.

Repeate as B4

H5 Using a Calculator Effectively in the Primary Classroom
Workshop
Linda Baron - Chirnside Park Primary School
Mary Burns - Chirnside Park Primary School

Why use calculators? How can they be used effectively in the classroom? Is order important? What games can you play to get children thinking? When should calculators be used? These and more questions will be answered as we work our way through an informative and fun session on the effective use of calculators in the classroom where we will explore understandings through a variety of games and simple exercises.

Note: Please note that calculators will be supplied for this session
Repeate as G7

H6 Making Maths the Highlight of the Week
Workshop
Sarah Macdonald - Moomba Park Primary School

This session will cover ways to excite students about Maths through the use of a range of lesson structures to vary teaching and learning. It will look at the benefit of implementing different models for maths sessions during the week and the positives of each of these models for both teachers and students. Participants will take part in model sessions and take away ideas and activities tried and tested in today’s classroom. Most of all, it will ensure excellent school attendance, even on Fridays!

Repeate as G8

H7 SAM-pling Something New
Lecture
Loretta Weedon - Catholic Education Office
Jan Walker - Catholic Education Office
Helen McClelland - St Anthony’s School Glen Huntly

As part of a whole school initiative to improve the teaching and learning of mathematics in Catholic primary schools, the Catholic Education Office Melbourne (CEOM) in partnership with Australian Catholic University (ACU), developed a professional learning program. A number of School Adviser Mathematics (SAMs) were employed to mentor classroom teachers with the goal of improving mathematical pedagogical content knowledge (MPCK)
and student outcomes. This presentation will focus on the challenges and successes of the initiative from three perspectives: the Program Coordinator, the School Adviser Mathematics (SAM) and a Classroom teacher.

**Repeated as G9**

**H8 Differentiating the Curriculum**
**Workshop**
Years: Prep - 6

*Kim Kirkpatrick - Kennington Primary School*
*Sherilyn Butler - Kennington Primary School*

In every classroom there are a variety of ability levels. Children often like to be doing the same activities as others not a ‘special’ program. Kim and Sherilyn will show you how they teach children at their point of need using the same activities with a different focus. Hands-on activities.

*Note: Bring a USB if you would like to collect information.*

**Repeated as G10**

**H9 Making the Most of Mathematics Manipulative Materials**
**Workshop**
Years: Prep - 6

*Paul Swan - Edith Cowan University*
*Linda Marshall - Edith Cowan University*

Based on research carried out at Edith Cowan University, this session will highlight some key finding about the effective use of mathematics manipulative materials – warts and all, and will offer practical applications of these findings. As this session is designed to be hands-on, participants are encouraged to bring along a camera to record the ideas that are shared.

*Note: Please bring a camera or mobile phone camera to record the various ideas and activities.*

**Not repeated**

**H10 Using Children’s Literature to Enhance Engagement and Learning in Mathematics**
**Workshop**
Years: Prep - 6

*Pamela Hammond - ROPA Consultancy*

The publication of the book “Books you can count on” by Rachel Griffiths and Margaret Clyne in 1988 made a huge impact on primary and lower secondary teachers’ approach to Mathematics in their classrooms. This workshop will discuss why children’s literature belongs in Mathematics sessions, with the opportunity to explore many books that naturally include mathematics concepts.

**Repeated as D4**

**H11 Empowering Students to Make their Mathematical Thinking Visible**
**Lecture**
Years: Prep - 8

*Lorraine Kennedy - WMR, Department of Education & Early Childhood Development*

Making explicit links between literacy and numeracy empowers all students to develop strategies and skills to enable them to enter into problem solving as successful mathematicians. Gaining an insight into student’s mathematical thinking through multiple representations while problem solving is an invaluable assessment of student conceptual understandings and knowledge that directly relates to teachers making more accurate judgements about planning the next steps. This practical session will involve discussion based on examples of student’s mathematical thinking through multiple representations while problem solving. This will enable participants to better understand how to interpret evidence of student thinking. Participants will leave with practical classroom ideas for assessment ‘for’, ‘of’ and ‘as’ learning and strategies that enable students to become successful mathematicians.

**Repeated as C8**

**H12 Teaching Mathematics at Stage Not Age**
**Lecture**
Years: Prep - 8

*Alan McSeveny - On Your Marks Mathematics*

The session will present an effective method to allow teachers and parents to teach each child according to their stage even within the classroom setting. Alan McSeveny is the author of the Signpost Mathematics Texts and many others from Years P to 12. Alan will present a new online concept he has developed for teaching and learning mathematics called OYM Maths Builder. With full testing, consolidation and extension pages, as well as school whiteboard options this program will add a new dimension to your teaching of mathematics. (Commercial Presentation)

**Repeated as B6**

**H13 The Mixer-upper-er: A Systematic Way to Group Students**
**Workshop**
Years: Prep - 12

*Peter Cox - La Trobe University*

How do you solve the age-old problem of grouping your students so that they work with different people? The Mixer-upper-er is a new way to achieve this! It enables teachers to systematically mix students so that, over a series of
groupings, every student in a class works with every other student in the class once. In this session participants will experience and learn how to use the Mixer-upper-er. This session will also report on the trial of this tool and share the beauty of the mathematics behind it. The trial was conducted in primary, secondary and tertiary classrooms. (Although this tool is now available commercially as a poster, this is a non-commercial presentation).

Repeated as G12

H14 Moving to Mastery with Mathletics
Lecture
Kate Williamson - 3P Learning/Mathletics
Mathletics is the leader in online maths education. 99.2% of students will achieve concept mastery... find out how.
(Commercial Presentation)
Repeated as B7

H15 Making Maths Marvellous with Manchester, Movement and Manipulatives
Workshop
Gabrielle West - Department of Employment, Education and Training
Make your mathematics units marvellous for both the teacher and the students, by using a variety of everyday objects like circular tablecloths, tea towels, quilt covers, skateboards, paddle pop sticks, elastic, coloured paper and card, clothes line and pegs, and the 3D’s (dice, dominoes and a deck of cards) that will engage the learner and produce results! Many mathematics topics are covered in this active session which includes open and closed questioning and connections to other curriculum areas. A CD with all the resources is also provided.
Repeated as B12

H16 Interactive Mathematics in the Primary Classroom
Workshop
Lauren O’Grady - Edsoft Pty Ltd
So you have an Interactive Whiteboard and can use the basics of the software but how do you make your maths lessons more engaging. In this session participants will get to see and try new lesson ideas and interactive whiteboard software targeted so students learn whilst being immersed and engaged in mathematics.
Not repeated

H17 An Interactive Whiteboard for Under $200
Workshop
David Phillips - Tintern Schools
Lynette George - Tintern Schools
We will show you how to make a portable interactive whiteboard using readily available components for less than 10% of the price of a standard fixed location IWB. Alternatively participants will have the opportunity to order a kit.
(Commercial Presentation)
Repeated as B13

H18 What Factors Makes a Numeracy Item Difficult?
Lecture
Dave Tout - Australian Council for Educational Research (ACER)
As part of the writing of test items for two international surveys of adults’ abilities in numeracy, the project team developed a Complexity Scheme that could be used for predicting the difficulty level of items. Five different factors were described that were believed to impact on how easy or difficult a respondent would find an item. Three of these related to maths skills, and two to literacy aspects of the item. In this presentation, Dave, who took a major role in the development of the Complexity Scheme, will describe the scheme and talk about what the lessons and implications might be for classroom teaching.
Not repeated

H19 Digging Into Hands-on Tasks
Workshop
Douglas Williams - Black Douglas Professional Education Services
One way to support students to unknot the apparent mysteries of mathematics is to make the subject more hands-on. Another is to place maths in the bigger picture of learning to work like a mathematician. These two components, and much more, come together in the hands-on problem solving tasks from the Mathematics Task Centre. They can be the beginning of many real alternatives to the textbook/worksheet diet which many teachers are now finding a little ineffective. Explore a few tasks; find out how to access their depth; extend your knowledge of the breadth of web-based support.
Not repeated
H20  Geometry in Art and Design: Escher, the MATHOMAT and VELS  
Lecture  
Susie Groves - Deakin University  
This interactive lecture/demonstration will illustrate ways in which an analysis of geometry in art and design can be used to underpin a range of exciting lessons to address the Space dimension at Levels 4 and 5 of VELS. Participants will be asked to undertake mini-investigations related to regular and homogeneous tessellations, using the MATHOMAT as a tool to aid their investigations. A particular focus will be the work of M. C. Escher.  
Not repeated

H21  Data Loggers for Mathematics  
Workshop  
Daniel Avano - Scienceworks  
Bronwyn Quint - Scienceworks  
Data loggers have been used in science classrooms for some time now, but can they be used in the maths classroom as well? Using data loggers, ‘real’ data can easily be collected by students using sensors. Graphs and tables can be shown to have relevance to ‘real’ events, not just numbers copied out of a book. Using data loggers to collect the data used for analysis, changes in variables can be tracked showing the resulting changes in graph shapes and data trends. Combining collected data with a program such as Excel students can easily produce tables and graphs for analysis.  
Repeated as E20

H22  A Well-Balanced Numeracy Program  
Workshop  
Mary Reynolds - Eltham College of Education  
At Eltham College of Education a successful numeracy program for Years 5–8 Middle Years students is currently proving to be a ‘hit’ with students of all ability levels. The numeracy program includes concept learning, skill development, ‘Working Mathematically’ and ‘Maths In Action’, enabling students to tackle ‘real world’ application problems. There is variety in the Numeracy lessons on a regular basis that is delivered in a way that develops in our students the ability to think mathematically. Students have responded positively to the Numeracy program and to the learning environments created. Participants attending this session will be able to take away a successful model and tailor it suit their own students needs.  
Not repeated

H23  Sundials and Other Useful Solar Instruments  
Workshop  
Tim Byrne - Croxton Special School  
Participants are introduced to the world’s oldest scientific instrument and can make two simple sundials. Participants are given notes with various sundial equations and are shown how to construct a simple equatorial sundial from inexpensive materials. Participants construct simple shadow casting instruments for measuring the sun’s altitude, zenith and azimuth. By way of providing a more meaningful context to time telling, participants learn how to calculate the correct time for noon, the equation of time, as well as make adjustments for latitude and longitude.  
Not repeated

H24  Maths Is An Option. How Do We Make Students Opt For It?  
Lecture  
Jamos Somerville-McAlester - Questacon - The National Science and Technology Centre  
Teaching maths is no easy task. Maths is a beautiful game that can be played with, but it's also a powerful tool for doing serious tasks (kind of like a hammer, only more...heavy). How do we balance the crucial elements of exploring fancy ideas, unexpected applications of maths, and learning things like times tables? Come and explore the benefits of using maths puzzles and guiding students on how to make their own puzzles. See why we introduce some of the more abstract parts of maths. Get some resources to help start you do similar things in your classroom next week.  
Repeated as C24

H25  Adventures With the Virtual Mathomat  
Workshop  
Ted Marks - Albion North Primary School  
Steve Lewis - A.U.S.S.I.E. Maths Consultant  
John Lawton - Objective Learning Materials  
Adventures With The Virtual Mathomat is a new software program which uses the interactive whiteboard to introduce and conduct lessons and investigations with the Mathomat template. The program introduces students to the Mathomat template and then uses it to explore key concepts including tessellations and navigation. In 2010 this stand alone program will also be integrated with Math Trek software, where the Virtual Mathomat will appear as
a tool along with the Acme Ruler and virtual MAB. The virtual materials in this workshop aim to inspire students by being a bridge between concrete and computerised tools. (Commercial Presentation).

Repeated as D23

H26 School of Trivia: A Jammed Packed Frenzy of Maths, Pop Culture, Music, Film and Yes Maths!!!!
Lecture

Peter Curry - Quiz Meisters Trivia
This will be a commercial presentation of the product entitled ‘School of Trivia’. Depending on the allocated time, I plan to run an actual trivia competition, showcasing the interactive DVD and curriculum based maths trivia (mixed with pop culture). This will be a highly charged presentation that will involve everyone in the room. (Commercial Presentation)

Note: Please bring a pen and a book to rest your answer sheets on.

Repeated as B20

H27 Using Maps
Workshop

Ruth Goddard - CAE, Glenroy Neighbourhood Learning Centre
Map activities used in classes for adults and young adults in a community setting.

Repeated as G23

H28 From Conceptual Understanding to Fluency in Algebra; A Program Utilising Instructional Games
Workshop

Jane Irvin - Morayfield State High School
Participants will be shown a program of instruction the presenter has used successfully in her classes. The session will focus on how to sequence lessons incorporating instructional games, materials, activities and language so the students can meaningfully gain an understanding of the concepts that underpin Algebra. Differentiated instruction and assessment will also be discussed as these allow students to engage from where they are at in their learning and then progress to fluency.

Repeated as G26

H29 Suddenly, We Had Engaged Middle Years Students? How Did That Happen?
Lecture

Gaye Williams - Deakin University
Brenda Menzel - Murrayville Community College
Brad Sheridan - Murrayville Community College
This session describes a Year 9 class who began their maths lesson showing what we describe as usual ‘Middle Years disinterest’. To the amazement of their teacher, the atmosphere in the classroom changed during the hour and a half session as the students began to engage with the task as they realised it was accessible to them. They were soon discussing mathematics. Brad and Brenda and Gaye examine the features of the lesson that contributed to this change.

Not repeated

H30 Using Educational Software in Mathematics
Computer Workshop

Andrew Townsley - Lilydale Heights College
My presentation will be on my experiences with using and evaluating mathematics computer software. I have concentrated on software that gives you feedback on answers, and game play software. Basically I want to get across how best to use IT software in mathematics for learning, after 3 years of trial and error. I have created my own computer games online and also used other web based material. I have asked my students what software they want to use and what they want created for them. Also I have an idea of what is engaging and what I have found doesn’t work.

Not repeated

H31 Web 2 and Mathematics
Computer Workshop

Kristy Graham - Distance Education Centre Victoria
In this session teachers will see the use of using Blogs, IM, Vodcasting and Wiki’s in mathematics. Teachers will explore different technologies and how these can be incorporated in the mathematics classroom. A set of usable resources will be provided.

Note: Please bring a laptop if you have your own broadband wifi.

Repeated as C30
H32  Row and Run Using the TI-Nspire Software  
Workshop  
Pauline Rocks - St Mark's Anglican Community School  
This session takes an in-depth look at a typical example of optimization using the Teacher Software for the TI-Nspire. What begins as a simple activity in Year 9 reinforcing the Theorem of Pythagoras, becomes more sophisticated for later years when it is constructed and simulated by the software. This allows the collection of data points (rather than being individually calculated) which can then be graphed. The optimal solution can be obtained graphically and then using methods of both algebra and calculus, the function can be superimposed and the optimal solution obtained – all with the same piece of software. 
Note: It would be an advantage to bring a TI-Nspire Calculator to the Session. 
Repeated as B25

H33  Fibonacci and Proportions  
Workshop  
Diane Itter - La Trobe University  
Lex Milne - La Trobe University  
Terry Mills - La Trobe University  
In 1202, Fibonacci wrote “Liber Abaci” to introduce Europeans to the Hindu-Arabic numeral system and the associated arithmetic. He was particularly keen to educate Italian merchants in these matters and discussed problems about proportions, such as the following. “A hundredpound of pepper is worth 13 pounds, and a hundredweight of cinnamon is worth 3 pounds; it is sought how many rolls of cinnamon are had for 342 pounds of pepper”. How did Fibonacci tackle these problems? What are the lessons for teaching our students about proportions? This paper is a collaborative work with Tina Fitzpatrick and Christopher Lenard as co-authors. 
Not repeated

H34  Pedagogical Gains from Wireless Networking TI-Nspires  
Workshop  
Ray Williams - St Mark's Anglican Community School  
This workshop provides participants with an opportunity to experience the interactive capacity of the wireless connection of TI-Nspire devices to the teacher’s computer in the classroom. The system allows for quality feedback from students as well as for the collection and dissemination of materials, concepts and information within the classroom. The ability to place a student in the role of ‘teacher’ provides a most useful degree of freedom for the teacher and results in immense pedagogical gains in the classroom. 
Repeated as G32

H35  Casio ClassPad 101  
Workshop  
Elena Zema - Prince Alfred College  
Learn the basic introductory skills to operate the Casio ClassPad. Free and useful resources will be available, that will convert you from beginner into a fluent ClassPadder in no time! This workshop is for first time users or if you just need to freshen up those skills. 
Note: Bring your ClassPad or use a loan machine. 
Repeated as G30

H36  Interactive Geometry on the ClassPad  
Workshop  
Ian Thomson - Ormiston College  
The ClassPad is a highly versatile calculator. It is well known for its CAS capabilities but it has many other features. This session will focus on the use of the ClassPad for geometry using its unique touch screen. Participants in the workshop will gain hands-on experience of working with the ClassPad on geometry activities and animations. ClassPads and hand-outs will be supplied at the workshop. 
Not repeated

H37  Teaching Surds with Technology: Exploring, Explaining, Generalising  
Lecture  
Roger Wander - University of Melbourne  
Michael Lane - Caroline Chisholm Catholic College  
Teaching surds can often be tedious if the usual textbook formats are followed. In this presentation, technology (TI-Nspire CAS) is used to explore the various patterns generated by a spiral of right-angled triangles. We will share the experience of using 'lesson study' to develop lessons and create professional learning opportunities for teachers within a mathematics faculty. 
Note: Paper documentation of the lesson will be provided. At the conclusion of the presentation, participants will be given website information for accessing all relevant files for their use. 

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H38  The Great Rat Race
Workshop  Years: 9 - 11
Brett Stephenson - Guilford Young College
The Great Rat Race is an analysis of the motion of 3 rodents in a race to a finish line 10m away. Using technology the distance, velocity and acceleration can be examined using several menus on a graphics calculator. Stationary points and intersection points are also possible with this student centred task.

Note: Please bring a graphic calculator with you if you have one. Casio ClassPads will be available otherwise.

H39  Using Interactive and Online Technologies to Support Student Learning
Workshop  Years: 9 - 12
Sarah Day - Kambrya College
This session will be a hands-on look at a range of classroom based technologies that can be used to support student thinking in the classroom and beyond.

H40  I Have Never Used a Casio ClassPad
Workshop  Years: 9 - Adult
Anthony Harradine - Prince Alfred College
Need to learn how to use the ClassPad? Designed for first time users, in the space of this workshop you will learn the basic logic of the ClassPad and be ready to explore new functions by yourself. A helpful summary of what we do (and more) will be supplied.

Note: If you have one, bring along a Casio ClassPad, if you do not, then loan units will be available.

H41  Geometer’s Sketchpad - Surd is the Word
Computer Workshop  Years: 10 - 10
Hayden McQueenie - Red Cliffs Secondary College
Ian Rowland - Red Cliffs Secondary College
Lloyd Stagg - Red Cliffs Secondary College
Geometer’s Sketchpad is an interactive, dynamic geometry software package. This workshop, aimed for beginners, will give a hands-on, basic introduction to GSP. We will then show how GSP can be used to supplement the teaching of surds from a geometric perspective, rather than purely numerical. No previous experience using Geometer’s Sketchpad is necessary.

H42  Using Land Surveying for General Maths 1 & 2 and Further Maths 3 & 4
Lecture  Years: 10 - 12
Rob Daniel - Caulfield Grammar School
The geometry and trigonometry aspects of both the General Maths 1 & 2 and Further Maths 3 & 4 courses can be covered using survey techniques both theoretically and practically. Offset surveys, radial surveys and triangulation provide avenues for the full range of trigometric applications as well as mensuration opportunities. Practical exercises can be arranged for either formal or informal assessments and a variety of locations where such exercises could be carried out will be presented.

H43  Exploring Sunrise and Sunset Data with TI-Nspire
Workshop  Years: 11 - 12
Neville Windsor - Hellyer College
Participants in this hands-on workshop will use TI-Nspire calculators to investigate sunrise and sunset data. Prior experience with the calculators is not necessary.

H44  Maths Methods (CAS) - Additional Content in the CAS Course
Workshop  Years: 11 - 12
Frank Moya - Frankston High School
This hands-on workshop is aimed at teachers who are new to the teaching of Maths Methods (CAS) Units 3 & 4. Participants will explore 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 A43**

**H45  Taking Real Data Further Mathematically**

**Computer Workshop**

*Andrew Stewart - Presbyterian Ladies’ College*

*Rachel Bucshuazy - Australian Bureau of Statistics*

CensusAtSchool is a rich resource of raw data freely available for students to use. Random samples of data from the huge CensusAtSchool database can be used in univariate or bivariate statistical investigations at VCE level using Excel® spreadsheets or calculators such as the TI-Nspire®. This workshop will show some of what is available from within the project as well as providing hints to other activities. The workshop will provide you with some take-home examples that will enable you to get started using CensusAtSchool data with your students.

*(Commercial Presentation)*

**Repeated as G43**

**H46  An Initiative to Assist Student Transition to, and Outcomes in, University Mathematics**

**Lecture**

*Narwin Perkal - La Trobe University*

With the long break between the end of VCE and commencing studies at university, the mathematical skills of new first year university students are often quite ‘rusty’. This presentation is to inform attendees of a new transition initiative at LaTrobe University aimed at helping students hone their secondary mathematics skills and improve learning outcomes. This program was developed in conjunction with a Pearson Education interactive website under a memorandum of understanding with LaTrobe University.

*Repeated as C44*
Presenter Listing

Jo Adams - D9, E6
Tony Allan - A28, C32, E25, G28
Janeane Anderson - D17
Janine Angove - A20, G20
Stephen Arnold - A-B7, C-D6, F-G10
Peggy Ashton - C13, D15
Lisa Audino - D7
Daniel Avano - A16, C18, E20, F23, G17, H21
Lynda Ball - E30
Mary Barnes - D36, E33
Linda Baron - G7, H5
Rohan Barry - E34, F38
Vivienne Belcher - F3, G4
Alan Bishop - F11, G13
Anna Bock - D17
George Booker - HK2
Liz Bortolot - C22, G19
Jennifer Bowden - F4
Jo Bradley - C29, D27
Alan Brookes - B32, F22
Debra Brooks - A21
Russell Brown - A35, B34, C37, D37, EK3, G38
Rachel Bucshuzy - C28, D22, G43, H45
Ian Bull - B15, C21
Latham Burns - D8, E7
Mary Burns - G7, H5
John Buruma - E36, F39
Carol Butel - A10, C12
Greg Butler - A9, B10
Sherilyn Butler - G10, H8
Tim Byrne - H23
Judith Callaghan - E17, F19
Adrian Camm - A30, B35
Geoff Campbell - A-B9
Jeanne Carroll - C11
Natalie Caruso - D35, E32
Jan Cavanagh - A-B1, C-D2
Jill Cheeseman - DK1
Linda Cheeseman - A12, F12
Sarah Childe - D7
Anita Chin - CK1, E13, F13
David Clarke - GK2
Philip Clarkson - A6, C5
Peter Clerks - B14, F20
Michael Cody - C42, D42
Brendan Colley - C9, E9
Tony Collison - F6, G11
Michelle Coupland - A-B2, F-G3
Amanda Cousins - F15
Peter Cox - G12, H13
Phil Cristofaro - A14, G14
Karen Crothers - B36, C36
Peter Curry - B20, H26
Jennifer Curtis - C34, F35
Rob Daniel - G41, H42
John Davidson - C16, E16
Ernest Kofi Davis - F11, G13
Denis Day - A25, B23, C31, D26, F29, G24
Sarah Day - G36, H39
David Demant - F25, G18
Joseph Dhlamini - A36, B37
Andrea Dineen - F-G1
Sue Ditchfield - D26, F27
Cathy Drury - C38, E37
Chris Dunn - A33, B29
Ian Edwards - E36, F39, G21
Nalini Ekanayake - A38, B39, C39, D41
Lyn Elms - A26, E24
Vebica Evans - A23, B26, D29, F31
Valerie Everist - F8, G22
Sue Ferguson - GK1
Peter Flynn - A-B8, C-D5
Peter Fox - AK3, C-D8, F-G13
Kelly Gallivan - E8, F7
Lynette George - B13, H17
Deborah Gibbs - A13, C14
Ruth Goddard - G23, H27
Rose Golds - A-B4, F-G6
Jamal Gorgees - A42, D39
John Gough - D14
Deborah Gould - G22
Bozenza Graham - B43, F40
Kristy Graham - C30, H31
Anne Grealy - E40, F43
Shirly Griffith - E39, F41
Susie Groves - E5, H20
Peter Hadji - B41, C40
Cameron Hallowell - D38, E35
Pamela Hammond - C-D1, H10
Anthony Harradine - A-B10, CK2, D34, E31, F-G9, H40
Peter Hartley - A21
Tess Haycox - C16, E16
Pauline Holland - E39, F41
Derek Holton - D28, G25
Erin Hooper - A-B4, F-G6
Alison Howard - B4, H4
Jill Howell - C16, E16
Sue Inness - B16, C20
Kathleen Ireland - F32, G29
Calvin Irons - EK1
Rosemary Irons - A4, C4
Jane Irvin - G26, H28
Diane Itter - H33
Russell James - D31, F34
Elizabeth Johnson - F3, G4
Peter Jones - A39, C-D10, F-G14
Penelope Kalogeropoulos - A17
Berinderjeet Kaur - D19, E19
Ingrid Kemp - A27, E26
Lorraine Kennedy - C8, H11
John Kermond - B42, F45
Rhonda Keysers - D24
Kim Kirkpatrick - G10, H8
Dean Lamson - A-B9, B40
Michael Lane - G34, H37
Anne Lawrence - BK3
John Lawton - D23, H25
Amanda Legg - C38, E37
David Leigh-Lancaster - A31, B28, E28, G31
István Lénárt - BK2, F-G7
Gerard Lewis - F-G1
Heather Lewis - A-B4, F-G6
Steve Lewis - B17, D23, E22, H25
Patrick Walsh - F4
Roger Wander - G34, H37
Ian Wanless - FK2
June Warren - A40, C41
Adele Webster - E12
Loretta Weedon - D9, E6, G9, H7
Gabrielle West - B12, H15
Lisa Weston - F4
Leah Whiffin - B36, C36
Allan White - F17, G15
Breigh Willcox - E8, F7
Douglas Williams - AK1, C7, D16, E15, F18, G5, H19
Gaye Williams - G16, H29
Melinda Williams - C6, D6
Ray Williams - G32, H34
Kate Williamson - B7, H14
Robyn Winchester - D13, E10
Neville Windsor - G42, H43
Will Windsor - A11, B11
Neale Woods - A-B11, C-D9, F-G12
Jessica Wu - A31, E28
Alexander Young - A15, F37
Elena Zema - G30, H35