MTANT MathsMeet North 2018 Conference Program

Friday 18 May & Saturday 19 May, O'Loughlin Catholic College

Friday 18 May			#MTANTMathsMeet18
5:00 pm	Conference Registration, finger food prepared and served by Year 10 O'Loughlin Food & Hospitality students & Tea/Coffee		**Library**
5:45 pm	Conference Opening: *John Bament*, MTANT President, & Acknowledgement of Country: *John Cubillo*, Larrakia Man, student O'Loughlin College Welcome: *Rhett Bowden*, Principal, O'Loughlin Catholic College		**Library**
6:00 pm	*Opening Keynote Address:* **From Talkies to YouTube, The Power of the Moving Image Finally Realised** *Joel Speranza*, Ormiston College, Brisbane		
7:30 pm	Happy Hour, sponsored by Texas Instruments.		**Library**
Saturday 19 May			
8:30am	Conference Registration & Tea/Coffee		**Library**
	Room 1 (**G2**)	Room 2 (**C4**)	Room 3 (**OL1**)
Session 1 9:00 am	**1a Number Talks [T-6]** *Jemma Rust* & *Gillian Huxham* Girraween Primary School	**1b Sound of Music (and Maths) [7-12]** *John Bament* O'Loughlin Catholic College	**1c reSolve: Mathematics by Inquiry [T-9]** *Guy Glover* & *Deborah Hallett* NT Dept of Education & O'Loughlin College
10:30 am	**Morning Tea**		**Library**
Session 2 11:00 am	**2a Valuing the Place [T-6]** *Lola Sleep* Good Shepherd Lutheran College	**2b Using Mathematical Modelling [10-12]** *Isabelle Hoadley* O'Loughlin Catholic College	**2c GeoGebra & Mathematical Reports [7-12]** *Pushpa Choudhary & Amanda Petersen* Good Shepherd Lutheran College **(In Library)**
Session 3 12:00 pm	**3a Alternative Methods in Multiplication [5-9]** *V. Moham Ram* Retired Mathematics Educator	**3b Rubik Cube [T-12]** *John Bament* O'Loughlin Catholic College	**3c Importance of a Growth Mindset [T-12]** *Leanne McMahon* AMSI
1:00 pm	**Lunch**		**Library**
Session 4 1:45 pm	**4a Discovering the Maths Inside [5-9]** *Kate Manuel* AAMT	**4b Why CHOOSEMATHS? [T-HigherEd]** *Helen Booth* AMSI	**4c Towards Tertiary [10-12]** *Lola Sleep* Good Shepherd Lutheran College
2:45 pm	*Closing Keynote Address:* **Teaching an Old Dog with New Tricks** **Joel Speranza**, Ormiston College, Brisbane		**Library**
3:45 pm	Afternoon Tea, *Prizes awarded* and Close		**Library**

Opening Keynote Address: **From Talkies to YouTube, The Power of the Moving Image Finally Realised**

Joel Speranza, Ormiston College, Brisbane

Since the first "Talkie" premiered in Movie Theatres 90 years ago, there has been a promise that moving pictures would revolutionise education. While Carl Sagan and David Attenborough have inspired millions with their documentaries, this promise has gone unfulfilled. This presentation will share strategies for flipping your classroom and showcase the workflow to achieve this.

1a Number Talks [T-6]

Jemma Rust & *Gillian Huxham*, Girraween Primary School,
jemma.rust@ntschools.net, gillian.huxham@ntschools.net

Helping children to build the language necessary to explain their mental math and computation strategies.

1b Sound of Music (and Maths) [7-12]

John Bament, O'Loughlin Catholic College
john.bament@nt.catholic.edu.au

So much of the music that we and our students listen to these days is digital. In this workshop you'll experience first-hand how to create digital music, gain a deeper understanding of octaves, how many notes really make up a scale and the mathematical link between all the notes. This will be achieved using technology and coding.

1c reSolve: Mathematics by Inquiry [T-9]

Guy Glover, NT Department of Education
Deborah Hallett, O'Loughlin Catholic College
guy.glover@nt.gov.au; deborah.hallett@nt.catholic.edu.au

reSolve: Maths by Inquiry is a national project that provides teachers with resources and pedagogical knowledge to help students learn mathematics in an innovative and engaging way. Inquiry learning is critical in connecting mathematics to the real world. It develops the skills students will need once they leave school. reSolve is led by a team of expert teachers and academics from around the country.

2a Valuing the Place [T-6]

Lola Sleep, Good Shepherd Lutheran College
lola.sleep@gmail.com

Place Value is a crucial concept for students to understand in order to be successful in Mathematics at all year levels. Through the use of Place Value Tents this concept can be taught and reinforced as needed. The Place Value Tents can also be used to assist with other concepts like front end addition. Depending on numbers you may leave this workshop with your own set of Place Value Tents. The files to create your own Place Value Tents will be available from MTANT's web site.

2b Using Mathematical Modelling to Enhance Students' Understanding of Functions [10-12]

Isabelle Hoadley, O'Loughlin Catholic College
isabelle.hoadley@nt.catholic.edu.au

In this SACE Mathematics inspired workshop participants will: use images and technology to map functions and see their applications; look at piecewise functions to enhance understanding of domain and range; model problems using exponential and trigonometric functions to address transformations and experience how Apps can enrich this.

2c GeoGebra & Mathematical Report Writing [7-12]

Pushpa Choudhary & *Amanda Petersen*
Good Shepherd Lutheran College
pushpa.choudhary@ntschools.net, amanda.petersen@ntschools.net

Utilising GeoGebra in the middle school classroom to demonstrate angles created by a transversal over parallel lines; changing gradient and y-intercept in the general linear model; exploring the exponential model; investigating patterns in parabolas; investigating a real life problem involving basketball and writing this in mathematical report format developing report writing skills for SACE Stage 1 and 2 mathematics courses.

3a Alternative Methods in Multiplication [5-9]

V. Moham-Ram, Retired Mathematics Educator
vmo63973@bigpond.net.au

This research exercise was mainly written for primary school teachers who are looking for alternative methods to use to teach multiplication to challenge the students who are seeking other ways to multiply two numbers with one and or several digits. The method uses suitable bases for multiplying initially single, double and more than two digit numbers. It does not use the traditional multiplication method, the matrix/lattice method, the single and double methods or the Russian Peasant method. In this method you will learn how to multiply say: 8 by 9 using base 10, 24 by 26 using base 20, 48 by 46 using base 50 and 98 by 96 using base 100. It also includes squaring any number, using algebraic formulae. It is assumed that the students already know the arithmetic rules: ± x ± = + and + x – = – and – x + = –.

3b Rubik Cube [T-12]

John Bament, O'Loughlin Catholic College
john.bament@nt.catholic.edu.au

I've owned a Rubik Cube for over 30 years and it was only in the last few years that I learnt how to solve it completely. Starting out as an opportunity to demonstrate to my Coding class what an algorithm was, it became so much more! In this workshop, learn how to solve the Rubik Cube, get resources to support you and your students, learn about other 'cubes' for the 3x3 masters and why there is so much more than just the six sides – focus, determination, patterns, language, teamwork, success and so much more!

3c Importance of a Growth Mindset in the Mathematics Classroom [T-12]

Leanne McMahon, AMSI
leanne@amsi.org.au

It is our role as educators to provide access to Mathematics learning for all students with a focus on students being thinkers, challenged and striving to be the best that they can be. We have all had students in our classes at one time or another who struggled with Mathematics. I will explore the work of Jo Boaler and Carol Dweck, and the impact of growth mindsets on student's ability to experience success in Mathematics learning.

4a Discovering the Maths Inside [5-9]

Kate Manual, AAMT
kmanuel@aamt.edu.au

Maths Inside is a project run in collaboration with UTS, CSIRO and AAMT. In this session we will watch two videos where the scientists talk about their work and mathematics ('Bees with backpacks' and 'Prawns for profit'). Build a beehive, find the shortest route to collect pollen, investigate inbreeding loops, and test the 'capture-recapture' method of estimating populations.

4b Why CHOOSEMATHS? [T-HigherEd]

Helen Booth, AMSI
helen@amsi.org.au

CHOOSEMATHS aims to turn around public perception of mathematics and will contribute to the health of the mathematics pipeline in Australia from school through university and out to industry and the workplace. The program works with students, parents and teachers over five years to turn around community attitude to participation in mathematics, especially for girls and young women. Since 2015 we have been leading the national implementation of key classroom and pipeline strategies to transform Australia's mathematical capability. With maths essential to a growing number of jobs, it is critical we foster understanding of the value and impact of maths and equip students to embrace these opportunities now and into the future. Working across four key components, the project is addressing pipeline challenges through Schools Outreach, Careers Awareness, CHOOSEMATHS Awards and the Women in Maths Network.

4c Towards Tertiary [10-12]

Lola Sleep, Good Shepherd Lutheran College
lola.sleep@gmail.com

As teachers of Senior Maths courses how can we prepare our students to be successful in their Year 12 Mathematics subjects and also in their mathematical studies at university? By looking at comments from the SACE assessment advice (formerly chief assessors' reports) and some research done by the Melbourne Graduate School of Education, The University of Melbourne, some practical ideas will be presented and ideas from all participants shared.

Closing Keynote Address: **Teaching an Old Dog with New Tricks**

Joel Speranza, Ormiston College, Brisbane

The subject of Mathematics is OLD! Pythagoras discovered his theorem around 500 BC; Pi is even older, approximated in approximately 1900 BC. The numbers 0 – 9 are a little newer, introduced to the world around 600 AD. The newest maths most students might find is calculus, invented around 200 years ago.
But while the content may be old, the way we teach it doesn't have to be.
In this session we will look at ways to leverage 21-century tools, technology and knowledge we have to teach maths better.

- ✓ Better ways of delivering instruction.
- ✓ Better ways of visualising mathematical concepts,
- ✓ Better ways for students to discover and construct mathematical knowledge.
- ✓ Better ways of providing and receiving feedback.
- ✓ Better ways of sequencing content.

Acknowledgements and thanks to:

- John Bament and Isabelle Hoadley, O'Loughlin Catholic College for on-the-ground support at the venue
- O'Loughlin Catholic College for providing the venue
- MTANT Management Committee for their planning and organisation for MathsMeet 2018
- The Keynote and Workshop Presenters who shared their experiences and expertise
- The following organisations that supported the conference by donating goods and/or providing staff to attend and present:
  - Casio Australia
  - Texas Instruments Australia – also Friday Evening Happy Hour Sponsor
  - SBA – Office National, Darwin
  - OfficeWorks Darwin
  - Australian Association of Mathematics Teachers (AAMT)
  - Australian Academy of Science – reSolve project
  - Australian Mathematical Sciences Institute (AMSI) – CHOOSEMATHS program
  - Knowledge Builder
  - Education Perfect
- Professional Teachers' Association of the Northern Territory (PTANT) for the grant to assist with the conference costs.

Maths Enrichment Camps
This year will be the ***tenth*** consecutive camp held, hosted by Batchelor Camp School and Ti Tree School.

If you'd like to be involved in this year's milestone camp, please contact **Matt.Skoss@gmail.com** so that you can be placed on the e-mail stream.

Batchelor Camp School
Friday 17th to Sunday 19th August

Ti Tree School
Friday 24th to Sunday 26th August