



The Mathematical Association of South Australia Inc



UnleyHighSchool

MASA Annual Conference 2024

'A Tapestry
of Wonders'

'The Magical Powers of Mathematics'

Thursday 18th & Friday 19th July

Unley High School

101 Kitchener Street, Netherby



mathspace

**credit
union**sa



**TEXAS
INSTRUMENTS**

CASIO
EDUCATION

KUMON

MATHEMATICS ENGLISH



CAMBRIDGE

cambridge.edu.au/education



MATHS
PATHWAY

gnzuk.education

Conference Program

Day 1

Thursday 18th July

8.30am – 8.45am	Registration – tea and coffee available
8.45am – 8.55am	Welcome and Housekeeping
8.55am – 9.10am	Conference ‘Gold’ Sponsors
9.10am – 10.00am	The Carol Moule Keynote Address Dr Caty Morris ATSIMA
10.00am – 10.30am	Conference ‘Gold’ Sponsors Morning Tea visit Trade Displays
10.30am – 11.20am	Workshop 1
11.30am – 12.20pm	Workshop 2
12.30pm – 12.45pm	ICME Discussion
12.45pm – 1.30pm	Lunch visit Trade Displays
1.40pm – 2.30pm	Workshop 3
2.45pm – 3.45pm	Keynote 2 Bonnie Haselgrove Bureau of Meteorology
3.45pm – 4.45pm	‘Happy Hour & Raffle Prize Draw’ Sponsored by the ‘Australian Taxation Office’ & ‘Flinders University’ (nibbles & refreshments provided)
5.30pm for a 6.00pm start	‘Dinner’ The Ed, 1-7 High Street Mitcham (\$10.00 deposit secures your booking when registering for the Conference)

Day 2

Friday 19th July

8.30am – 8.45am	Registration – tea and coffee available
8.45am – 8.55am	Welcome and Housekeeping
8.55am – 9.10am	Conference ‘Gold’ Sponsors
9.10am – 10.00am	Keynote 3 Dr Ange Rogers RMIT University
10.00am – 10.30am	Conference ‘Gold’ Sponsors Morning tea visit Trade Displays
10.30am – 11.20am	Workshop 4
11.30am – 12.20pm	Workshop 5
12.30pm – 12.45pm	Collaborative Discussion
12.45pm – 1.30pm	Lunch visit Trade Displays
1.40pm – 2.30pm	Workshop 6
2.45pm - 3.45pm	Maths Games Provided by Dr David Butler, University of Adelaide & Happy Hour / Raffle Prize Draw Sponsored by the ‘Australian Taxation Office’ & ‘Flinders University’ (nibbles & refreshments provided)
3.45pm	Close of Conference

The Carol Moule Keynote Address

Thursday 18th July – Day 1

Dr Caty Morris | Project Manager | ATSIMA



Bio:

Dr Caty Morris is a Project Manager with the Aboriginal and Torres Strait Islander Mathematics Alliance after seven years as Curriculum Specialist, Aboriginal and Torres Strait Islander Education at the Australian Curriculum Assessment and Reporting Authority. In 2017, she received a doctorate for her research in responsive mathematics pedagogy with Aboriginal learners. Her work at the intersection of mathematics education and First Nations Australian education has been at school, regional, state, and national levels in various teaching and leadership positions from remote to inner city settings. Caty also spent time as a Mathematics Consultant in the Bronx in New York City, TAFE lecturer in Sydney, and Manager Primary Mathematics and Science for the Department for Education in South Australia.

During 2009-2014, Caty managed the Closing the Gap project *Make it count* for the Australian Association of Mathematics Teachers to improve mathematics and numeracy learning outcomes of urban and regional Aboriginal and Torres Strait Islander students in seven clusters of schools across Australia.

Title:

Unpacking Aboriginal and Torres Strait Islander histories and cultures in the mathematics classroom

Abstract:

This keynote address will discuss Aboriginal and Torres Strait Islander histories and cultures content in the mathematics curriculum and how this content weaves narratives through the strands and year levels to deepen student learning. It will discuss ways non-Indigenous teachers can teach in culturally responsive ways, such as connecting with Community.

Keynote 2 | Thursday 18th July – Day 1

Bonnie Haselgrove | Bureau of Meteorology



Bio:

After completing a Bachelor of Mathematical and Computer Sciences with Honours and a Graduate Diploma in Education, Bonnie had a brief stint as a high school mathematics teacher before joining the Bureau of Meteorology in 2014 where she gained a Graduate Diploma in Meteorology. She has spent most of her career as an operational weather forecaster, delivering services for the public, aviation customers, and Emergency Services. Bonnie recently joined the Bureau's Training Centre, conducting training and competency assessments for forecasters, working on the implementation of the Australian Fire Danger Ratings System, and helping manage and deliver the Bureau's Introduction to Meteorology courses.

Title:

The Mathematics of Weather

Bonnie Haselgrove | Bureau of Meteorology – continued

Abstract:

Mathematics defines the fundamental equations which describe the behaviour of our atmosphere, playing a vital role in predicting the weather that touches on the lives of Australians every day. Mathematics is also at the core of our understanding of the past, present, and future of weather in our world; we use it to describe our climate, to analyse current weather observations, and to predict how our climate will change in the future. This presentation will discuss some examples of mathematical applications in meteorology and climatology, and potential links they have to the Australian Curriculum.

Keynote 3 | Friday 19th July – Day 2

Dr Ange Rogers | RMIT University



Bio:

Dr Ange Rogers is a passionate presenter who regularly facilitates Professional Development for teachers and schools across Australia. In 2014 she completed her PhD in Mathematics Education focusing on the assessment and teaching of whole number place value in Years 3-6. In her PhD she developed the Place Value Assessment Tool (PVAT) and has since created a suite of resources to support schools in using the data to guide instruction. Ange currently lectures part-time to pre-service teachers at RMIT University in Melbourne and mentor's teachers and leaders through her online website, the Numeracy Teachers Academy.

Title:

Maths Magic: Assessment- Helping teachers to see the 'unseen'

Abstract:

In this keynote Ange explores how high-quality assessment can 'magically' allow the unseen (the knowledge of a student) to be 'seen'. Assessment is arguably the most important step in the teaching and learning process. It can also be one of the most stressful, time-consuming and challenging parts of a teacher's work. Administering, marking, and then analysing assessment data, takes a great deal of skill and knowledge. However, collecting the data is only the first 'act'. Teachers must then 'transform' the data into instruction which targets the needs of each student. Ange presents a compelling argument for making informed choices around assessment, and shows that while the assessment process is complex, the results can be magical!

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9.10am – 10.00am	The Carol Moule Keynote Address 1 Dr Caty Morris ATSIMA
10.00am – 10.30am	Conference 'Gold' Sponsors Morning Tea visit Trade Displays

10.30am – 11.20am | **Workshop 1**

Session	Presenter and Title	Yr levels	Room
1.1	Sonya Arnold & Mark Ward Department for Education SA Curriculum for Public Education: addressing dispositions, capabilities and knowledge	7 to 10	
1.2	Allan Dougan AAMT Inc Building effective and equitable classrooms	3 to 10	
1.3	Timothy Edwards St Aloysius College Using AI to teach sampling and statistics	10 to 12	
1.4	Rebecca English Immanuel College On the Money	9 to 10	
1.5	Desire Gilbert AISSA Unlocking creativity in Junior Primary Mathematics	Foundation to 2	
1.6	Alaistair Lupton Adelaide Botanic High School From coffee to coaching, Mathscraft to classrooms - a journey in problem-solving	7 to 9	

11.30am – 12.20pm | **Workshop 2**

Session	Presenter and Title	Yr levels	Room
2.1	Peter Fox Texas Instruments Investigations for Middle School Mathematics	7 to 10	
2.2	Alaistair Lupton Adelaide Botanic High School Kicking goals with trigonometry: video-enabled maths in the real world	9 to 11	
2.3	Timothy Edwards St Aloysius College An Experiment in Minecraft Escape Rooms	7 to 9	
2.4	Ross Riach Gleeson College Storytelling & gamification: The magic of making maths on adventure	7 to 12	
2.5	Reeta Sidhu Australian Taxation Office Free curriculum-aligned teaching resources for primary and secondary schools	Foundation to 12	
2.6	Dr Caty Morris & Dr Rebecca Vivian ATSIMA & The University of Adelaide Culturally responsive maths pedagogy	Primary & Secondary	

12.30pm – 12.45pm | **ICME Discussion**

12.45pm – 1.30pm | **Lunch – visit Trade Displays**

1.40pm – 2.30pm | **Workshop 3**

Session	Presenter and Title	Yr levels	Room
3.1	Tim Budenberg St John's Grammar School AC 9 Student Statistical Investigations and Closing the Gap	7 to 10	
3.2	Peter Fox Texas Instruments Random Stuff - How to use probability and simulations to learn more about the world.	7 to 12	
3.3	Rebecca Garrett Trinity College Discussion: AI in the Classroom	Primary & Secondary	
3.4	Joel Moylan Mathspace Visualising Success: Interactive Tools and Engagement in Maths	Upper Primary & Secondary	
3.5	Maria Provas & Dr Amie Albrecht The Heights School & UniSA Problem Solving: Developing the will and the skill through a Year 10 Maths Elective	10	
3.6	Sharon Robertson Unley High School Improving Writing Outcomes in Mathematics	Middle School	

2.45pm – 3.45pm | **Keynote 2 - Bonnie Haselgrove, Bureau of Meteorology**

3.45pm – 4.45pm | **Happy Hour & Raffle Prize Draw**

(nibbles & refreshments provided)

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University

5.30 pm for 6.00 pm | **Conference Dinner** | The Ed, 1-7 High Street Mitcham

\$10.00 deposit (click online) secures your booking when registering for the Conference)

Day 2	Friday 19th July
8.30am – 8.45am	Registration – tea and coffee available
8.45am – 8.55am	Welcome and Housekeeping –
8.55am – 9.10am	Conference 'Gold' Sponsors
9:10am – 10:00am	Keynote Address 3 Dr Ange Rogers RMIT University
10.00am – 10.30am	Conference 'Gold' Sponsors Morning Tea visit Trade Displays

10.30am – 11.20am | **Workshop 4**

Session	Presenter and Title	Yr levels	Room
4.1	Dr David Butler University of Adelaide Creating moments of joy in everyday maths	Primary & Secondary	
4.2	Michelle McLeod RiAus The Royal Institution of Australia Cracking the Code - Ciphers, Cryptography and Computational Thinking	3 to 10	
4.3	Dr John West An explicit teaching approach to problem solving	3+	
4.4	Dr Kelly Trezise Maths Made Visible Maths anxiety in the classroom: What it looks like and how to reduce its impact.	Primary & Secondary	
4.5	Maureen Hegarty & Joanne Kennedy Department for Education Financial Literacy	4 to 8	
4.6	Richard Wilson Maths Pathway Teaching maths in 2024: new developments from learning science	Upper Primary & Secondary	

11.30am – 12.20pm | **Workshop 5**

Session	Presenter and Title	Yr levels	Room
5.1	Dr David Butler University of Adelaide Your questions about Maths Sheep Play Sheep	Primary & Secondary	
5.2	John Rowe Desmos Classroom How not to solve maths problems	Primary & Secondary	
5.3	Jack Rowe Eastern Fleurieu R-12 School Introduction to Desmos Classroom - Setting up and implementing activities for your classroom 6 - 10	6 to 10	
5.4	Christine Lenghaus TAFE Gippsland (Vic) Calendar Patterns 5 - 9	5 to 9	

5.5	Michelle McLeod RiAus The Royal Institution of Australia Using Escape Room Style Activities in your Mathematics Classroom	Upper Primary to Secondary	
5.6	Dr Ange Rogers Numeracy Teachers Academy Targeted Teaching - The what and how	Foundation to Year 6	

12.30pm – 12.45pm | **Collaborative Discussion**

12.45pm – 1.30pm | **Lunch – visit Trade Displays**

1.40pm – 2.30pm | **Workshop 6**

Session	Presenter and Title	Years	Room
6.1	John Absolon St Mary's College Excel In Maths	3 to 12	
6.2	Vanessa Gorman Department for Education Numeracy Across the Curriculum	Primary & Secondary	
6.3	Kate Johns Westminster School Discussion: HALT	Primary & Secondary	
6.4	Jo Kellaway ASMS Sieging Dunsinane Castle -A science, maths, English extravaganza!	6 to 11	
6.5	Jack Rowe Eastern Fleurieu R-12 School The Chessboard Problem - Giving a classic problem a modern makeover 6 - 10	6 to 10	
6.6	Darius Samojlowicz Mathematical Association of NSW Inc Empowering Maths Leaders: Strategies for Effective Leadership	K to 12	

2.45pm – 3.45pm | **Maths Games** | Provided by Dr David Butler, University of Adelaide

& Happy Hour / Raffle Prize Draw

(nibbles & refreshments provided)

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NAME and ABSTRACT	Session	Years
ABSOLON, John St Mary's College Excel In Maths Bring your laptop as it will be a practical workshop and get ready to use Microsoft Excel and master the basics. This presentation is targeted at foundation level excel use, get to grips with shortcuts, formatting, entering formula, and how to set up a spreadsheet for student success. By understanding excel, you will be better able to teach your students and see them thrive. This workshop will also be good for teachers looking to update their skills and learn a new thing or two.	6.1	3 to 12
ARNOLD, Sonya & WARD, Mark Department for Education SA Curriculum for Public Education: addressing dispositions, capabilities and knowledge The new SA Curriculum for Public Education: Mathematics integrates the dispositions, capabilities and knowledge learners need now, and for life. In this session we will share teaching and learning opportunities that foster the integration of this essential learning aligned to the new SA Curriculum for Public Education: Mathematics.	1.1	7 to 10
BUDENBERG, Tim St John's Grammar School AC 9 Student Statistical Investigations and Closing the Gap This workshop will present one school's 'work in progress' in response to the new Australian Curriculum's recurring theme of students planning and conducting statistical experiments. Students in Years 7 to 10 will be guided in investigating the gap between indigenous and non-indigenous Australians as the Productivity Commission's statistics. All classroom resources will be shared and feedback/ideas welcomed.	3.1	7 to 10

BUTLER, Dr David University of Adelaide Your questions about Maths Sheep Play Sheep Maths Sheep Play Sheep is a picture book I created for Children's Book Week 2023 inspired by Where is the Green Sheep by Mem Fox and Judy Horacek. It is full of references to mathematical ideas from all over mathematics. In this session, you will use the picture book to inspire questions about mathematical ideas, and you will see how they can be answered to honour the bravery and the existing mathematical brilliance of your students.	5.1	Primary & Secondary
BUTLER, Dr David University of Adelaide Creating moments of joy in everyday maths Joy is an important experience that helps people make meaning and maintain motivation. It is not the same as fun or contentment, so you don't need to make your class a song and dance to achieve it. Instead, you can create little moments of joy for students within everyday ordinary maths class activities. In this workshop, you will discuss how to find these moments in your own class, even in things that might seem mundane at first.	4.1	Primary & Secondary
DOUGAN, Allan AAMT Inc, Australian Association of Mathematics Teachers Inc Building effective and equitable classrooms In this session we will explore the characteristics of an effective and equitable mathematics classroom. We want all students to feel motivated and inspired to realise their full potential in mathematics. We will explore the ideas of engagement and equity in our classrooms.	1.2	3 to 10
EDWARDS, Timothy St Aloysius College Using AI to teach sampling and statistics A workshop exploring the use of AI to enhance Statistical understanding of sampling distributions. Ideas for students' enquiry as well as applications for assessment writing. Participants are encouraged to bring a device to use during the workshop. The workshop will have a significant focus on Stage 2 Mathematical Methods.	1.3	10 to 12
EDWARDS, Timothy St Aloysius College An Experiment in Minecraft Escape Rooms Years 6 – 9 Presenting a Minecraft Escape Room for Year 7 Ratios. In this workshop, we will discuss considerations for using this technology as a learning tool. Creating these requires some understanding of programming and digital technologies. We will also discuss how to implement these in a classroom setting and how to create engaging learning environments. Participants are encouraged to bring a device with Minecraft Education installed.	2.3	7 to 9
ENGLISH, Rebecca Immanuel College On the Money Hear about our experience of offering the elective subject for Year 10s, On the Money: Your Financial Game Plan, which has been one of our most popular electives for year 10s. In this elective, students investigate different forms of investment including property, shares, bank products and commodities. They learn about the risks – and how to manage them, and rewards – and how to optimise them. Students participate in the ASX Schools Sharemarket Game – and win cash prizes! Students develop an understanding of wealth-building strategies that will be beneficial in the future.	1.4	9 to 10
FOX, Peter Texas Instruments Investigations for Middle School Mathematics What proportion of Pascal's triangle consists of even numbers? Where are the odd numbers located? This is just the tip of the iceberg when it comes to investigations offered in this workshop. Participants will get the opportunity to select from a range of investigations. Naturally the investigations cross over strands, helping students to make connections and see that there is a lot more to mathematics than Chapter 1, Ex 2, Qs 1 - 10, LHS.	2.1	7 to 10
FOX, Peter Texas Instruments Random Stuff - How to probability and simulations to learn more about the world. While it would be fair to say the content of this workshop is not exactly random, it's probably not what you would expect. To help understand the journey this workshop will take you on, here's a sample problem: "Imagine you've just ordered an Uber™, while you're waiting for it to arrive you amuse yourself by tossing one of those old-fashioned currency items (a coin). If a tail appears you take a step to the right, if the king's head appears, you take a step to the left.	3.2	7 to 12

How far from your Uber pick up point will you be when your Uber arrives? This same approach can be used to determine things like the growth of the internet, how cool is that?		
GARRETT, Rebecca Trinity College Discussion: AI in the Classroom Bring your experiences and insights to this discussion on the integration of AI in our classrooms. This discussion will be shaped by the contributions of the group, we will cover questions such as: - How can we incorporate AI into assessment and learning activities effectively? - What strategies can we use to support the ethical use of AI in education? - How do we promote the responsible and innovative use of AI among students and teachers? Don't miss this opportunity to explore the potential of AI to transform our teaching practices and enhance student learning. Let's come together to share ideas, challenges, and solutions in this exciting field.	3.3	Primary & Secondary
GILBERT, Desiree AISSA, Association of Independent Schools of South Australia Unlocking creativity in Junior Primary Mathematics How can we design our teaching and learning mathematics units so that students' creativity is nurtured and their critical thinking skills are developed? This workshop is designed for Junior Primary teachers and focuses on pedagogical approaches to teaching that create space for students to be both creative and critical as they engage with mathematical concepts and develop understanding. The Australian Curriculum v.9 Achievement Standards, Content Descriptors and General Capabilities will be used as a resource in this session.	1.5	Foundation to Year 2
GORMAN, Vanessa Department for Education Numeracy Across the Curriculum It is well accepted and understood amongst the mathematics education community that numeracy is the responsibility of all teachers, across all levels of schooling. However, the way numeracy is understood and actioned across the Early Childhood, Primary and Secondary contexts is different. This teacher workshop will: - report on findings of a case study conducted about numeracy across the curriculum in a secondary school - identify the difference between mathematics and numeracy in the curriculum (primary/secondary) - provide school wide strategies for teachers and leaders to embed numeracy across the curriculum as outlined in the SA Department for Education 2024 Numeracy Summit presentation by Professor Marilyn Goos.	6.2	Primary & Secondary
HEGARTY, Maureen & KENNEDY, Joanne Department for Education Financial Literacy Financial Literacy Primary focus years 4-8 Improved financial capability can empower individuals to take action to achieve their goals. Small positive changes in financial behaviours such as planning and budgeting, spending restraint, savings and credit habits can improve people's financial wellbeing regardless of their income, age or background. National Financial Capability Strategy 2022. This workshop will focus on research and activities to further promote the development of financial literacy in young people.	4.5	4 to 8
JOHNS, Kate Westminster School Discussion: HALT Bring your experiences and insights to an engaging discussion on teacher certification. This discussion will be shaped by the contributions of the group, we will cover questions such as: - How do we measure our impact on student learning? - How can we promote excellence and continuous improvement in our teaching practices? - What innovative ideas and pedagogies are we using in our classrooms? - How do we become certified as a highly accomplished or a lead teacher?	6.3	Primary & Secondary

Don't miss this opportunity to share your successes, challenges, and solutions. Let's come together to inspire and be inspired, enhancing our professional growth and student outcomes.		
KELLAWAY, Jo ASMS Sieging Dunsinane Castle -A science, maths, English extravaganza! Join us to use catapults to understand quadratic equations and energy transformations through the lens of MacBeth. Interdisciplinary learning is the cornerstone of curriculum delivery for Years 10 and 11 at ASMS. In this workshop, participants will have the opportunity to use catapults and motion capture software (Tracker) to explore modelling quadratic equations using projectiles to 'take down' MacBeth. They will use this data to identify intercepts and vertices as they relate to the varying forms of quadratic equations and analyse motion. Using this manipulative learning approach, enables differentiated strategies to assist students to understand and identify, • Energy types and transformations. • the relationship between the coefficients of quadratic equations and their shape and position on the Cartesian plane. • Simplistically model the Law of Conservation of Energy to calculate potential and kinetic energy use. • the connection between forces and motion. This workshop aligns with curriculum connected to AC Year 10 Science, Maths and English and SACE stage 1, Quadratic relationships (foundation understandings), Physics -Motion and forces and English -Text creation. What could be more fun than flinging marshmallows around a classroom?!	6.4	6 to 11
LENGHAUS, Christine TAFE Gippsland (Vic) Calendar Patterns 5 – 9 Calendar patterns Are you ready to explore a maths investigation to uncover the magic of calendars? This hands-on session will allow you to experience a wonderful lesson that can have many 'hooks' for topics including number, statistics and algebra.	5.4	5 to 9
LUPTON, Alastair Adelaide Botanic High School From coffee to coaching, Mathscraft to classrooms - a journey in problem-solving This workshop will share the story of a 10+ year project that has sought to enhance the capacity of teachers to bring non-routine problem-solving to life in their classrooms. The philosophy and behaviours central to having school students doing mathematics like research mathematicians will be discussed and exemplified (be prepared for some group-based problem-solving). The workshop will include a discussion of ongoing work being done to coach, support and share all of this with South Australian middle-school mathematics teachers in their classrooms in 2024 (and beyond).	1.6	7 to 9
LUPTON, Alastair Adelaide Botanic High School Kicking goals with trigonometry: video-enabled maths in the real world “Do maths in the real world” is the cry. It adds meaning, relevance, and challenge, they say. Sounds good in theory – but what if I don't like excursions? Video is a great way of taking our students to the interesting real-world places, without leaving the classroom (and filling out a bunch of risk assessments). The rugby field, where a conversion kick is being attempted, is one such place. This workshop will share a video treatment of the “rugby kick” problem, a lovely piece of applied right-angled trigonometry and includes ‘teacher edition’ notes and all you need for a great lesson, or a nice little assessment task.	2.2	9 to 11
McLEOD, Michelle RiAus, The Royal Institution of Australia Cracking the Code - Ciphers, Cryptography and Computational Thinking Looking for hands-on resources to use in your mathematics classroom? Join us as we break the code of ciphers, cryptography, and computational thinking. Explore a range of activities aimed at building and enhancing student understanding of computational thinking and algorithmic problem solving. These activities do not require access to computers, instead they use games, puzzles, and moving around the classroom to develop and enhance student's skills. Designed to support the incorporation of computational thinking across various year levels in ACARA V9.0.	4.2	3 to 10

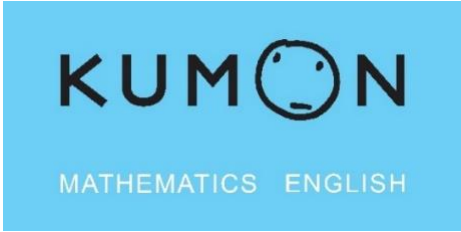
McLEOD, Michelle RiAus, The Royal Institution of Australia Using Escape Room Style Activities in your Mathematics Classroom Escape room or breakout style challenges can be used to support problem-based learning opportunities and create authentic learning environments. In the mathematics classroom these types of activities can be used to enhance and assess conceptual understanding and application, to connect STEM topics, and to develop student capabilities. In this workshop you will have the chance to explore the components and characteristics of a successful 'escape room' activity, learn how to access or create the required equipment and resource kits, review where to find activity resources, and trial 'mini' escape room activities.	5.5	Upper Primary to Senior Secondary
MORRIS, Dr Caty ATSIMA The University of Adelaide & VIVIAN, Dr Rebecca The University of Adelaide Culturally responsive maths pedagogy Culturally responsive maths pedagogy is a way of teaching that harnesses the diverse cultural characteristics, experiences, and perspectives of culturally and linguistically diverse communities to increase student interest. This workshop will lead participants through an exploration of the First Nations histories and cultures content in the latest version of the Australian Curriculum: Mathematics. Participants will gain a deeper understanding of the Aboriginal and Torres Strait Islander Histories and Cultures cross-curriculum priority and how to respectfully and appropriately deliver this in the maths classroom, harnessing culturally responsive maths pedagogy, and with the support of free resources from the Maths in Schools program.	2.6	Primary & Secondary
MOYLAN, Joel Mathspace Visualising Success: Interactive Tools and Engagement in Maths By using investigations and explorations, we can transform the way we teach maths. This approach enables students to visualise and interact with mathematical concepts through a guided learning journey. A student's skills map supports personalised learning, allowing them to set their own goals and visually track their progress. This caters to individual learning needs and promotes differentiated instruction and accessibility in our classrooms. Indeed, a picture is worth a thousand words.	3.4	Upper Primary & Secondary
PROVATAS, Maria The Heights School & ALBRECHT, Dr Amie University of South Australia Problem Solving: Developing the will and the skill through a Year 10 Maths Elective Think about your Year 11 students... • Are they problem solvers who try multiple approaches to a question before thrusting their hand in the air to seek your assistance? • Do they actively seek and give feedback to each other, genuinely valuing everyone's learning and achievement? • Do they ask good questions? Do they notice patterns and connections? Do they willingly offer their reasoning?	3.5	Year 10
RIACH, Ross Gleeson College Storytelling & gamification: The magic of making maths on adventure Discover the science behind storytelling / gamification and how to harness these in the classroom to enhance engagement and the application of mathematics. Experience an immersive, adventure-based assessment in statistics and probability, explore common tactics for engaging and motivating students to promote more effective learning and the technology that enables it.	2.4	7 to 12
ROBERTSON, Sharon Unley High School Improving Writing Outcomes in Mathematics In a subject based chiefly on numbers the impedance to engage further with literacy is paramount. With our South Australian Certificate of Education requiring senior students to write at least one folio task during their final assessment package, the question of where these writing skills are taught was foremost on my mind as a leader. Vocabulary is easy to engage with but the development of writing in Maths needs to be explored further especially when reasoning is one of the Australian Curriculum Mathematics strands. An opportunity to engage with professional development aligned with DfE ORBIS Years 6 to 9 Literacy program and facilitated by the University of Melbourne allowed me to focus on Middle School routines and guidelines to support the writing of folios and narratives in the Middle School Maths classroom. In this presentation I want to share the process and products, I used with Middle School	3.6	Middle School

students to develop materials to support the inclusion of writing into Maths classrooms to increase student learning outcomes. Using both research and action-research based sources led me to develop teaching resources which engaged student agency whilst delivering focused literacy skills. Students have been provided with scaffolds to enhance narrative writing; including a placement tool to enhance self or peer assessment. This allowed students to strengthen their skills with the elements of a narrative. In developing folio writing skills students assisted in building the features of the folio using a structure strip to guide their work. (https://historytech.wordpress.com/2017/08/17/where-have-you-been-all-my-life-structure-strips/)		
ROGERS, Dr Ange Numeracy Teachers Academy Targeted Teaching - The what and how Research shows us that targeted teaching works. But what is targeted teaching? Is it just a politically correct way to describe 'ability grouping'? What does it look like in a classroom? This session unpacks targeted teaching with reference to relevant research and provides practical examples of what a targeted teaching session might look, and feel like, for the teacher. Ange suggests a novel structure that will help you support teachers to introduce targeted teaching in a manageable way. You will leave this session with a clear understanding of what targeting teaching is (and is not) and how you can successfully introduce this approach to improve the quality of instruction at your school.	5.6	Foundation to Year 6
ROWE, Jack Eastern Fleurieu R – 12 School The Chessboard Problem - Giving a classic problem a modern makeover How many squares on a chessboard...? Such a simple prompt can have quick-thinking students jump to a simple conclusion. With a little nudge and an "aha", they'll see a few more than the original 64 squares. With another little nudge, some slow-thinking and organising of their thoughts, they'll reveal an answer. This is great!... but really it's only the beginning... Participants will need their laptop for best experience.	6.5	6 to 10
ROWE, Jack Eastern Fleurieu R – 12 School Introduction to Desmos Classroom - Setting up & implementing activities for your classroom This workshop will introduce participants to Desmos Classroom - the online interactive lesson activities. Participants will take part in activities as a student, as well as be provided with teacher tips to deepen conceptual understanding, promote effective and concise mathematical language, and provide rich online learning experiences for their students. No experience with Desmos required. Participants will require a laptop to access the activities.	5.3	6 to 10
ROWE, John Desmos Classroom How not to solve maths problems This workshop is not about teaching content more efficiently. It's not about STEM. Not about project-based learning, discovery learning, direct instruction or Direct Instruction. We won't be considering any learning goals, learning intentions, or learning outcomes. There won't be any discussion about spaced practice, spiral practice, retrieval practice, or personalised practice. You might do something, I might do something, and we might do something, but in no specific order. This workshop is about helping students to understand what it means to be mathematical, think mathematically, and do mathematics. We will explore ways to provide students with the opportunities, support, and guidance to experience mathematics and find joy in thinking.	5.2	Primary & Secondary
SAMOJLOWICZ, Darius MANSW, Mathematical Association of NSW Empowering Maths Leaders: Strategies for Effective Leadership This workshop is for maths leaders. Explore the topics: common scenarios, difficult conversations, positive culture, leadership traits and leading teaching and learning. Uncover practical strategies to support your team and enhance student success. Darius is the Executive Officer of the Mathematical Association of NSW. He has extensive experience in education and leading teachers, schools and systems.	6.6	K to 12
SIDHU, Reeta Australian Taxation Office Free curriculum-aligned teaching resources for primary and secondary schools Learn about the ATO's free teaching resources for primary and secondary schools. Developed by teachers for teachers, these resources are fully mapped to the Australian	2.5	Foundation to Year 12

Curriculum and include a range of digital and print resources to make it easier for teacher to use in their classroom.		
TREZISE, Dr Kelly Math Made Visible Maths anxiety in the classroom: What it looks like and how to reduce its impact Maths anxiety affects many students and can impair their ability to learn and achieve, as well as their study or career intentions. This workshop will give an overview into what maths anxiety can look like in your students and discuss some of the impacts you will see on your students. There will be a strong focus on how to reduce the impact of math anxiety on students' math learning and achievement. We will also discuss some strategies to reduce maths anxiety.	4.4	Primary & Secondary
WEST, Dr John An explicit teaching approach to problem solving John will showcase a range of hands-on resources and activities including Digidial, various Popper Boards, Base 10 materials and his publications, including the Problem Solving Handbook and the Puzzle Compendium series.	4.3	3+
WILSON, Richard Maths Pathway Teaching maths in 2024: new developments from learning science Over the last four years, the field of learning science has made a remarkable amount of progress in clarifying some practical elements of how learning works, that have significant implications for how we can teach maths. This workshop will cover an overview of cognitive load theory, knowledge maps and sequencing, retrieval practice and spaced repetition, with a focus on techniques to include them in our teaching practice.	4.6	Upper Primary & Secondary

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Dr John West
MATHEMATICS EDUCATION CONSULTANT