

2022 Primary Mathematics Showcase Highlighting best practice and pedagogies

The Mathematical Association of Victoria (MAV) primary consultants collaborate to present a conference focusing on primary school mathematics education.



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2022 Primary Mathematics Showcase

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Session	Presenters	Title
Welcome and Keynote 9am–10am	Jennifer Bowden and Peter Saffin	A: What is 'best practice' in 2022? What is great teaching? What are outstanding pedagogies?
Workshop rotation B 10am–10.40am	Hannah Marino	B1: Student agency goal setting using authentic assessment to construct student goals
	Cathy Epstein/Rodgers	B2: Stimulating mathematical dialogue
	Michael Minas	B3: Launch, explore and summarise: tips for implementing a new instructional model
	Andrea O'Connor	B4: Differentiation: extending maths to all
Break: 10.40am–11am		
Workshop rotation C 11am–11.40am	Jane Hubbard	C1: Effective and manageable processes to assess student responses to challenging tasks
	Ashlie Hassall	C2: Supporting primary students and students with learning difficulties using the concrete, representational, abstract approach
	Di Liddell	C3: Exploring the anticipate phase of the launch, explore, summarise instructional model
	Em O'Halloran and Nick Devereux	C4: SHOOT and SCORE: Engaging students through sport and STEM
Workshop rotation D 11.40am–12.20pm	Angela Rogers	D1: Implementing a research-based place value assessment tool in Years 2-6
	Amanda Cassidy	D2: Problem solving within the mathematics classroom
	Ellen Corovic	D3: Summary: It is more than just share time
Lunch and networking: 12.20pm–1pm		
Workshop rotation E 1pm–1.40pm	Dr Paul Swan and Narelle Rice	E1: Differentiation is different to intervention
	Paul Staniscia	E2: Developing mathematical proficiency
	Thomas Moore	E3: Seeing is believing! Multiple representations
Workshop rotation F 1.40pm–2.20pm	Judy Gregg	F1: It's a matter of time
	Eamon Light	F2: The power of 'Thanks for that'
	Dr Paul Swan and Narelle Rice	F3: Solving NAPLAN style word problems
Panel 2.20pm–3pm	Various presenters	G: Towards 2030! What will 'quality teaching' look like in the future?

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Time	Title/abstract	Presenter biography
Welcome and Keynote 9am-10am	<p>A: What is 'best practice' in 2022? What is great teaching? What are outstanding pedagogies?</p> <p>What is 'best practice' in 2022? Let's explore some aspects of great teaching and outstanding pedagogies to kick off our day.</p> <p>We need our students to be able to do mathematics, and value it! They need to understand why it's important, as they require it for success in everyday life. Maths anxiety and disengagement can leave students feeling that maths is disconnected from their lived experience, and that mastery is required to feel success. Traditional approaches can create pass or fail situations (think ✓ or X) that put students under stress and make students feel they can't succeed.</p> <p>Good teachers mix approaches; inquiry-based learning, warm-ups, number talks, discussion and exploring the proficiencies, supported by explicit instruction, prompts, differentiation and other techniques allow teachers to select the best approach for their students at their point of need, and in a typical mixed ability classroom not all students need the same instructional approach at the same time. Let's explore techniques educators can use, and how can you add to your repertoire.</p>	<p>Jen Bowden, MAV Education Consultant</p> <p>Jennifer Bowden has worked as an Education Consultant at the Mathematical Association of Victoria (MAV) for 15 years. She enjoys inspiring teachers, maths coaches, consultants, and leaders to become more critical and creative in their teaching, empowering consultants and teachers to be better educators and provide the best learning experiences for their students. Jen coaches, mentors and guides consultants, teachers, and leaders to build teacher capacity, increase knowledge of curriculum content, and to develop better pedagogies to establish school-wide improvement. Jen's current interest is in helping teachers and leaders to improve education in a way that promotes and challenges students' thinking.</p> <p>Peter Saffin, MAV CEO</p> <p>Peter is the CEO of The Mathematical Association of Victoria (MAV). MAV promotes the importance of mathematics in society and supports maths education through various programs and services. Peter commenced his career as a teacher working in both Australia and New Zealand. He then moved into educational publishing, where he led businesses and teams producing leading print and digital resources and learning platforms for Australia and internationally. Peter is a Board member of The Australasian Society of Association Executives (AuSAE), Graduate of the Australian Institute of Company Directors (AICD), and a Certified Association Executive (CAE).</p>
Workshop rotation B: 10am-10.40am	<p>B1: Student agency goal setting using authentic assessment to construct student goals</p> <p>Let's explore a process of how an assessment on addition and subtraction mental computation strategies can be used to set goals with students in Year 3 and 4.</p> <p>We will address how to manage individual needs while utilising seesaw as an avenue to provide instruction, and for students to show evidence of their learning as a form of communication with parents.</p> <p>Our intention through this process was to encourage students to develop independence and to be able to articulate and reflect on their learning. Hear our story in order to learn strategies for how you too can develop student agency.</p>	<p>Hannah Marino</p> <p>Hannah Marino is a Mathematics Leader at St John XXIII Primary School in Thomastown, Melbourne. Originally from New Zealand, Hannah has taught in Melbourne Catholic Primary Schools since 2008 and has been a mathematics leader in various schools since 2010. Hannah worked as a mathematics consultant for MACS in 2018, supporting schools in the Northern Region.</p>

	<p>B2: Stimulating mathematical dialogue</p> <p>Number Talks provide a rich opportunity for all students to engage in mathematics by encouraging the students to think flexibly about numbers. But why not extend this flexible thinking across the strands! By providing rich prompts or probing questions we can ignite the spark to encourage flexible thinking and reasoning for all our students in all areas of numeracy. This workshop will explore a range of prompts that promote analytical and collaborative dialogue and encourage divergent thinking to stimulate understanding and success for all.</p>	<p>Cathy Epstein/Rodgers</p> <p>Cathy works as a consultant at MAV and is the Numeracy leader at St Paul's Bentleigh and St Peter's East Bentleigh. Cathy also runs her own mathematics consultancy business. Cathy is passionate about teaching our students to be divergent thinkers, encouraging them to solve problems by making connections. In the past 15 years she has acquired a wealth of tried and tested rich tasks that extend across the strands, are easily differentiated and promote an environment of keen mathematicians.</p>
	<p>B3: Launch, Explore and Summarise: tips for implementing a new instructional model</p> <p>In this workshop, we examine the Launch-Explore-Summarise instructional model. What are the key features of this approach to structuring a maths lesson and how does it differ from other, more traditional lesson structures? Attendees will participate in a modelled lesson, allowing them to gain a deeper understanding of the benefits of using this approach. We will also discuss issues such as student agency, differentiation, teacher questioning and perhaps most importantly- student engagement. Each participant will leave with a clear understanding of how to lead the implementation of the Launch-Explore-Summarise instructional model at your own school.</p>	<p>Michael Minas</p> <p>Michael Minas is the director of Love Maths (www.lovemaths.me) and has worked in education for over 20 years. His areas of interest include problem solving and student engagement. Michael's YouTube channel features close to 100 videos of engaging maths games and has attracted over half a million views from educators from across the globe.</p> <p>In 2018, Michael's ability to shape learning was recognised when he won a CHOOSEMATHS Teaching Excellence Award. He presents at conferences around Australia and provides consultancy services to a range of organisations, including the Mathematical Association of Victoria and the Bastow Institute for Educational Leadership. Michael was the editor of <i>Prime Number</i> from 2019 to 2021 and is a contributing author for the Maths300 website.</p>
	<p>B4: Differentiation: extending maths to all</p> <p>The pedagogy of differentiation in a maths classroom can be achieved using a number of approaches. In this session, current evidence-based approaches to differentiation will be explored to support instructional and pedagogical decision making by the primary maths teacher.</p> <p>The presentation will model how enabling and extending prompts can be incorporated into challenging, rich mathematics tasks, which ensure all learners have access to the curriculum and remove the need for ability groups. The use of easily administered formative assessment ideas will also be shared to help inform the maths educator of the 'where to next' for learners.</p>	<p>Andrea O'Connor</p> <p>Andrea O'Connor is a Senior Education Officer: Leader of Pedagogy for Catholic Education Sandhurst. She has over 20 years experience teaching mathematics in both primary and secondary schools in Australia and the UK. Andrea completed her Masters of Education: Mathematics Education, researching student achievement outcomes of regional and rural students in mathematics.</p> <p>She has worked with MAV presenting workshops at conferences and supported the organisation of the Wangaratta Regional MAV Conference in 2021. Andrea works collaboratively with schools and teachers to build teacher quality in mathematics through coaching and providing professional learning.</p>
Workshop rotation 2: 11am-11.40am	<p>C1: Effective and manageable processes to assess student responses to challenging tasks.</p> <p>This workshop will present efficient and manageable processes to effectively assess and evaluate students' learning through challenging tasks. The presentation will focus on how to determine student progress and future learning goals when interpreting the diverse responses that students produce when working on open ended and challenging tasks.</p>	<p>Jane Hubbard</p> <p>Jane has extensive experience as a primary school teacher and leader. For the past six years Jane has worked as a consultant supporting school leaders in improving their mathematics programs. She is a PhD candidate at Monash University, researching the use of challenging tasks in the Early Years.</p>

	<p>C2: Supporting primary students and students with learning difficulties using the concrete, representational, abstract approach.</p> <p>This workshop allows you to explore the ways in which manipulatives can be used to explore concepts, no matter your age!</p> <p>This workshop aims to show the value in the use of manipulatives and multiple representations to gain a deeper understanding of abstract mathematical concepts. Research to support this approach will be briefly examined particularly how the CRA (concrete, representational, abstract) approach supports students with learning difficulties.</p>	<p>Ashlie Hassall</p> <p>Ashlie is a dedicated, passionate teacher and learning specialist who has worked in the field for 10 years. She has worked across the full scope of the curriculum, with experience teaching Years 1-6 as a classroom generalist teacher and as a special educator. She has a love for teaching maths and to cultivate a passion for numeracy amongst her students and be a leader to her peers. Ashlie has had the privilege to work with MAV on many projects and has relished these opportunities to bring about whole school change in the way maths is taught in the primary school and special education setting.</p>
	<p>C3: Exploring the anticipate phase of the Launch, Explore, Summarise instructional model.</p> <p>This session draws on some of the findings from the EMC3 (Exploring Mathematical consequences of Connected, Cumulative and Challenging task) project, by exploring the inclusion of the anticipate phase to the Launch, Explore, Summarise instructional model.</p> <p>The anticipate phase of this instructional model, aims to support teachers during the collaborative planning of challenging tasks.</p> <p>Through this presentation, attendees will gain an understanding of how to best plan for the implementation of challenging tasks in their everyday classroom practice.</p>	<p>Di Liddell</p> <p>Dianne Liddell is an education consultant and researcher. She is the Founder and Director of Engage, Empower, Educate and has teaching experience across State, Catholic and independent schools both nationally and internationally. Dianne's experience focuses on the implementation of play-based and inquiry teaching approaches and into early years learning environments.</p> <p>She is a strong supporter of the Reggio Emilia approach, advocating for the reconceptualisation of education, centred around a pedagogy that honours the voice of the child. As a professional mentor and coach, she has led the successful transformation of teaching pedagogies that have increased student (and teacher) engagement through active participation. Dianne is completing an educational research project through The University of Melbourne, teachers' beliefs and practices for enacting a pedagogy of listening.</p>
	<p>C4: SHOOT and SCORE: Engaging students through sport and STEM</p> <p>In this workshop for teachers of Year 3 to Year 6, we will explore a range of engaging challenges and games incorporating STEM (with an emphasis on the M) and basketball and other ball sports challenges and games are freely available to use in your classrooms and guaranteed to get your students moving!</p>	<p>Em O'Halloran and Nick Devereux</p> <p>Em O'Halloran joined The Huddle in 2019 as Manager, Education and Careers. Prior to The Huddle, Em was a leading teacher specialising in eLearning and STEM. Em has a graduate degree in marine biology and a graduate diploma in teaching. She is an experienced educator, manager and learning designer with over ten years of leadership experience. Her philosophy is to empower others to develop the skills and mindset to navigate, thrive and find joy in the ever-changing world. When Em is not busy designing and implementing learning programs that leverage the power of sport to inspire brighter futures and strengthen social inclusion, you will find her playing with her kids, Peter (5) and George (3).</p> <p>Nick Devereux joined The Huddle in 2019 and worked in the Sport and Recreation team before starting as Educator Engagement Coordinator in late 2021. Nick has a bachelor's degree in Applied Science/Physical Education and was PE teacher prior to joining The Huddle. He is an experienced sports coach, currently working with North Melbourne Football Club's VFLW team. Nick is passionate about the power of sport to drive positive change. In the few spare minutes outside of The Huddle and coaching, Nick can be found tinkering with or riding his beloved bicycles.</p>

<p>Workshop rotation D: 11.40am-12.20pm</p>	<p>D1: Implementing a research-based place value assessment tool in Years 2-6. It is critical for our students to develop a deep understanding of place value. However, 'place value' is a broad term which encompasses much content. In order to accurately determine a student's place value understanding, we require quality assessment tools which unpack the construct through a wide variety of questions. Many place value assessments ask students superficial questions which focus on reading, writing, expanding, ordering and comparing numbers. While these are necessary skills, there are several other aspects we need to investigate to gain a 'complete picture' of a student's place value knowledge.</p> <p>In this session Ange will share with you the Place Value Assessment Tool (PVAT) she developed in her PhD. She will show you how to administer and analyse the PVAT results to identify common misconceptions. You will walk away with a high-quality, research-based assessment tool to try in your classroom on Monday!</p>	<p>Angela Rogers Ange completed her PhD in 2014. Her research looked at teaching and assessing place value in Years 3-6. She designed and validated a paper and pen and online test for place value called the PVAT. Since her PhD, Ange has also developed an iPad app to support teachers in their teaching of place value. The app is <i>Zero Our Hero</i>. Ange currently lectures part-time at RMIT University, consults and provides PD for schools and teachers across Australia. She is the editor of the Mathematical Association of Victoria's teacher journal <i>Prime Number</i> and loves nothing more than sharing her passion for maths with students, parents and educators.</p>
	<p>D2: Problem solving within the mathematics Classroom Creating challenging open middle problems solving tasks where students develop content knowledge whilst understanding, planning, carrying out and checking their mathematical understandings is an essential ingredient in all mathematics lessons. The use of 'sticky attributes' will be discussed as a way in which teachers can create unforgettable lessons for their students.</p>	<p>Amanda Cassidy Amanda is an experienced primary school mathematics educator. She works as a consultant at MAV and is currently the Numeracy Leader at St Patrick's Primary School in Wangaratta. Amanda's passion is providing quality maths education for all students, and she is currently working on bringing about a consistent whole school change in the way maths is taught.</p>
	<p>D3: Summary: It is more than just share time. How many times have you got to the end of a lesson and have run out of time or inspiration to wrap the session up? This session will review the importance of the summary phase of a mathematics lesson and highlight six strategies to incorporate into your planning so that you can maximise student learning opportunities.</p>	<p>Ellen Corovic Ellen Corovic is a passionate educator who enjoys collaborating with students, teachers and schools. As a teacher, school leader and now education consultant and researcher, she works to build individual and collective efficacy as well as teacher capacity in mathematics. Ellen has extensive experience as an education consulting, including 10 years based at The Mathematical Association of Victoria. She is currently working on her PhD at Monash University with the focus on teachers' mathematics practice change. In addition, she is a professional learning and research officer at Monash University and independent education consultant.</p>

<p>Workshop rotation E: 11.40am-12.20pm</p>	<p>E1: Differentiation is different to intervention In this session Dr Paul Swan and Narelle Rice will explore:</p> <ul style="list-style-type: none"> • A response to intervention framework for a whole school approach to Maths Intervention. • Key attributes of students who experience difficulty in mathematics and require intervention. • Guidelines to teach and implement intervention effectively, including the use of manipulatives in a Concrete – Representational – Abstract Framework. <p>The mathematics in the session will focus on additive thinking: from initial counting in kindergarten through to Year 3 level addition and subtraction.</p> <p>Reference will be made to how a Concrete Representational Abstract approaches links to the solving of word questions in addition and subtraction.</p>	<p>Dr Paul Swan and Narelle Rice Dr Paul Swan has taught mathematics in both primary and secondary schools and worked as a Senior Lecturer in Mathematics Education at Edith Cowan University in Australia for 18 years. He has written over 50 books, authored numerous journal articles and created many types of mathematics games – board, card and digital. He designs mathematics manipulative materials and supports schools looking to improve the teaching of mathematics in both schools and across whole school systems</p> <p>Narelle has 20 years’ experience teaching mathematics from lower primary through to lower secondary. She has worked in teacher education for the Association of Independent Schools of WA and Edith Cowan University. Narelle is enjoying time working with Dr Paul Swan.</p>
	<p>E2: Developing mathematical proficiency Mathematics education is much more than Content Strands. It involves engaging in rich learning experiences in becoming proficient in Mathematics. Mathematical Proficiency cannot be categorised as present or absent, one needs to keep in mind that every mathematical idea can be understood in many levels and many ways (National Research Council, 2001). It is something that is acquired over time and as students move through their schooling, they should become increasingly proficient.</p> <p>Therefore, to become proficient, students need to spend time doing mathematics (solving problems, justifying their thinking, developing understanding, practicing skills) and building connections between their previous knowledge and new knowledge. Using the Mathematical Proficiency Strands, this workshop will evaluate an instructional model in guiding practice around the teaching and learning of mathematics.</p>	<p>Paul Staniscia Paul is Deputy Head of Primary at Southern Cross Grammar. While completing his Masters in Educational Leadership he developed effective leadership skills and explored his leadership capacity. Specialising in Mathematics during his Masters study enabled Paul to further explore the importance of Mathematical Proficiency in the successful learning and teaching of Mathematics. Paul’s current and future leadership potential was both recognised and affirmed by ACEL as a recipient of the 2019 New Voice in School Leadership Scholarship. Paul has written a range of articles for MAV <i>Prime Number</i> and ACEL journals, exploring a variety of teaching and leadership strategies.</p>
	<p>E3: Seeing is believing! Multiple representations When was the last time you had that ‘Aha’ moment? How often are you able to provide it for your students in mathematics? This workshop promises to explore a number of mathematical representations that will help you to understand various concepts in mathematics more deeply, and then use these to teach your students. We’ll look at a range of manipulatives and mathematical models that can be used to teach a range of concepts within Number and Measurement and Geometry. We’ll also explore some resources that you can go to for further inspiration in this area.</p>	<p>Thomas Moore Thomas Moore is a passionate educator whose work has spread across many sectors of the mathematics education domain. He has worked in multiple schools across Melbourne, in which his roles have included Leading Teacher (Head of Mathematics), DET tutor, and CRT. Thomas is also the founder of EngageME Mathematics - A Mathematics resource development and consulting company, and he enjoys developing an intrigue for working mathematically within both teachers and students alike. Thomas is completing his PhD, exploring how effective teachers of mathematics develop productive pedagogical relationships with their students.</p>

<p>Workshop rotation F: 1.40pm-2.20pm</p>	<p>F1: It's a matter of time Tick tock goes the clock! Learning about time is much more than just being able to read a clock. It is a difficult concept for students to grasp because it cannot be seen or felt. In addition to learning how to tell time, students need to have an awareness of time, as well as an understanding of succession and duration of time. This workshop also covers aspects of the Victorian Science curriculum; exploring Earth's revolution and phases of the moon which enhances students' understanding of time measurement units.</p> <p>This session will equip participants with some practical activities that go beyond teaching students to read clocks. These experiences will be centred around Margaret Thomas' framework for the learning and teaching of time. This includes awareness of time, succession of time, duration of time, and measurement of time.</p>	<p>Judy Gregg Judy is an experienced primary school mathematics educator. She believes that teachers' pedagogical content knowledge, along with their passion and enthusiasm for mathematics is the key to raising standards in mathematics education. Her post graduate studies in early numeracy and mathematics leadership, along with her experiences as a classroom teacher, number interventionist, and as a school maths leader developed a passion within her to share this knowledge with other teachers. Judy works as a contract school consultant in primary education for the Mathematical Association of Victoria, which includes in-school consulting, writing projects in partnership with the Department of Education and Training. Judy has a strong desire to develop teachers' skills in delivering engaging and challenging maths activities through an exemplary use of the proficiencies to promote 'real' learning. 'If students are not struggling, they are not learning'.</p>
	<p>F2: The Power of 'Thanks for that'. To build a culture of participation it is crucial to develop positive dispositions to enable students to think critically and develop the confidence to take calculated risks. Student participation in mathematical lessons takes many forms. This session will explore how it is important for teachers to provide wait time, targeted questioning, and the purposeful absence of verification to develop mathematical thinkers.</p> <p>The session will provide practical examples of student responses to mathematical tasks and show how it is important that both mathematical and pedagogical content knowledge is included in the planning of rich learning experiences.</p>	<p>Eamon Light Eamon Light is a passionate mathematics educator who has 16 years' experience in a range of educational settings including primary schools and university.</p> <p>Eamon's priority in mathematics education has always been to build mathematical minds through developing critical, creative and independent thinkers from an early age. Eamon has a passion for developing positive dispositions towards mathematics in young learners through mathematical inquiry and using real life contexts to stimulate engagement.</p>
	<p>F3: Solving NAPLAN style word problems In this session Dr Paul Swan and Narelle Rice will share a whole school approach to solving word problems. They will look at why using a 'key word' strategy only works 50% of the time and give you a mathematically robust alternative that is based on:</p> <ul style="list-style-type: none"> • George Polya's approach to problem solving and • Part-Part-Whole using a diagram often referred to as a bar model/strip diagram/tape diagram/ Singapore maths. <p>The mathematics in this session will focus on addition and subtraction word problems from Years 2 to 7.</p>	<p>Dr Paul Swan and Narelle Rice Dr Paul Swan has taught mathematics in both primary and secondary schools and worked as a Senior Lecturer in Mathematics Education at Edith Cowan University in Australia for 18 years. He has written over 50 books, authored numerous journal articles and created many types of mathematics games – board, card and digital. He designs mathematics manipulative materials and supports schools looking to improve the teaching of mathematics in both schools and across whole school systems</p> <p>Narelle has 20 years' experience teaching mathematics from lower primary through to lower secondary. She has worked in teacher education for the Association of Independent Schools of WA and Edith Cowan University. Narelle is enjoying time working with Dr Paul Swan.</p>
<p>Panel: 2.20pm – 3pm</p>	<p>G: Towards 2030! What will 'quality teaching' look like in the future?</p>	<p>Various</p>